HYDROGEOLOGICAL STUDY
PROPOSED DEVELOPMENT, 200 MAPLE CREEK COURT

Project No.: CP-18-0512

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Executive Summary

McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) was retained by Kris and Dana Norris to conduct a hydrogeological assessment to determine the yield and quality for the existing on-site water well and its ability to meet the supply requirements for the proposed development located at 200 Maple Creek Court, Ottawa, Ontario ("the Site"). This study has been prepared in support of a proposed development on primarily vacant land with portable offices and garages on-site. An outline of the property is presented on Figure 1.

Ground surface at the Site is generally relatively flat; sloping gently down to the northeast. Site elevation ranges between approximately 113 to 120 metres above sea level (m asl). Surface drainage is interpreted to reflect surface topography, draining to the north and northeast across majority of the Site. Regional groundwater is interpreted to flow to the north and northwest, towards the Ottawa River.

To satisfy the requirements of this hydrogeological assessment, McIntosh Perry tested an existing drilled domestic water supply well, located at 200 Maple Creek Court (Test Well 1, TW1), located along the northern boundary of the Site, approximately 0.6 km east from Maple Creek Court. The well was tested for water quality and quantity.

Test Well 1 was pumped for a duration exceeding six (6) hours on two separate occasions. The first occasion took place on January 30, 2019 and consisted of a step-test in which one sample (TW1-1) was taken. The second occasion took place on February 25, 2019 and consisted of an 8-hour pumping test. Two samples were taken during this time (TW1-1 and TW1-2). The pumping rate during the 8-hour pump test (approximately 11.36 L/min) is considered sufficient to supply the development of a new pre-engineered building located at 200 Maple Creek Court.

Water quality results indicate that the bedrock aquifer provides good quality water, which may be considered suitable for human consumption. All water from Test Well 1 (TW1) sampling the local bedrock aquifer meets all applicable health-related standards and guidelines at the present time. Some treatment may be considered for aesthetic objectives only.

On-site soils within the proposed development area consist of hardpan materials underlain by limestone. Approximately 1.2 m to 9.8 m of overburden were present in the area based on well records. The infiltration capacity of overburden material at the site should be confirmed using field percolation tests at the septic system design phase. Any septic systems should be constructed with all appropriate setbacks as per Ontario Regulations and the Ontario Building Code.

The Site appears to be capable of supporting the proposed development, from a hydrogeological perspective.

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1.0 INTRODUCTION

McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) was retained by Kris and Dana Norris of NCM Hydrovac Services to conduct a hydrogeological assessment to determine the yield and quality for an existing on-site water well (TW1) at 200 Maple Creek Court, Ottawa, Ontario ("the Site"); location for the Site is presented on Figure 1. TW1 was assessed to determine its ability to meet the supply requirements for the proposed development of a pre-engineered building at this location. The work included comprehensive water quality testing at TW1. An outline of the Site, showing the neighbouring properties and an aerial photograph of the property, is presented on Figure 2 – Site Layout. At the present time, the Site consists primarily of vacant land, with portable offices and three on-site portable canopy-tents used as storage areas. This work was conducted in general accordance with the City of Ottawa Hydrogeological and Terrain Analysis Guidelines, as well as the Ontario Ministry of Environment, Conservation and Parks (MECP) guidance as follows:

- Procedure D-5-5: Technical Guideline for Private Wells: Water Supply Assessment (August 1996)
- Procedure D-5-4: Technical Guideline for Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment (August 1996)

TW1 is located along the northern boundary of the Site, approximately 0.6 km east from Maple Creek Court (Ottawa, Ontario). TW1 was originally an un-instrumented borehole, in which a well was constructed on April 24, 2001.

The Site is legally described as follows:

CON 2 N PT LOT 7 RP 4R-17169; PART 6, CITY OF OTTAWA

This Hydrogeological Assessment addresses the following items:

- General site setting information
- Geological and hydrogeological background
- Site specific conditions

2.0 BACKGROUND

2.1 Site Setting

The Site is located at 200 Maple Creek Court, south of Tansley Drive, within the City of Ottawa (Figure 1). The Site is designated as 'Rural General Industrial' in the City of Ottawa Zoning By-Law.

At the present time, the Site consists primarily of vacant land, with portable offices and three canopy garages. The Site consists of vacant land, with man-made ponds along the eastern border. On-site vegetation consists primarily of grasses, with shrubs and small trees present along the fence lines.

On-site elevation ranges from approximately 113-120 m above sea level (asl) as shown on Figure 3. The Site slopes down to the north, toward the Ottawa River.

The climate is humid continental with cool winters and warm summers. The 1981-2010 mean annual precipitation is approximately 919.5 mm with 175.4 cm as snow, and the mean daily temperature is 6.6 °C (Environment Canada Climate Normals for Ottawa, ON).

2.2 Neighbouring Properties and Land Uses

The Site is bounded to the north by vacant forested land and commercial properties on 137, 143, 147, and 151 Tansley Drive, Maple Creek Court to the west, and by agricultural and wooded land to the south and east.

The nearest residential properties relative to the Site are located approximately 600 metres to the east, along Oak Creek Road and Newill Place. Based on a review of MECP Water Well Information System (WWIS) records, it appears that all residences in the area are privately serviced with wells and septic systems.

Figure 3 – Surrounding Land Use, presents the land usage for the surrounding area along with topographical and hydrological information.

2.3 Hydrology

Ground surface at the Site is generally relatively flat, sloping gently down to the north Surface drainage is interpreted to reflect surface topography, draining to the north and northeast across the Site (see Figure 3). A wooded area and man-made ponds are present to the east of the Site. Local overburden and shallow bedrock groundwater likely flows to the east and south, toward an adjacent wetland and watercourse, respectively. The closest permanent water body is a small tributary that crosses Carp Road, approximately 600 metres southwest of the Site. Regional groundwater may flow to the north and northwest, towards the Ottawa River.

2.4 Geology and Hydrogeology

The majority of on-site soils are described as coarse-textured glaciomarine deposits (sand and gravel with minor silt and clay), while the northeastern portion of the Site consists of diamict (stone-poor sandy silt to silty sand) (OGS 2019).

Published geological mapping by the Ontario Geological Survey (OGS) in the area reveals that the site and immediate surrounding area is underlain by Middle to Upper Ordovician bedrock, described interbedded bioclastic limestone, sublithographic to fine crystalline limestone of the Verulam Formation (OGS 2019).

OGS mapping is generally consistent with overburden descriptions from WWIS records within 500 m of the Site, which describe bedrock as predominantly limestone with some granite. Bedrock was encountered at depths ranging from 3.35 to 50.29 m below ground surface (m bgs).

The bedrock described in the well record for TW1 is consistent with the Verulam Formation, consisting mainly of limestone.

2.4.1 Recharge and Discharge Areas

Based on a review of topographic data, geological maps, and a Site visit, it is our interpretation that the Site is predominantly a groundwater recharge zone. Drainage for the Sites appears to be good, with no areas of ponded water (existing ponds are man-made) or poor drainage observed. Further, the Site is not located in an area of known karst topography and is well-drained. An unevaluated wetland area is present immediately north/northeast of the Site, and is considered to be a discharge area. Within the vicinity of TW1, overburden soil thickness (consisting of sand and gravel and/or clay) varies from 1.2 to 9.8 m. As such, this Site is considered to be within a hydrogeologically sensitive area.

2.4.2 Potential Sources of Contamination

A windshield survey of the surrounding area was conducted in combination with a review of maps and zoning information. The Site is located in a predominantly commercial area with some vacant forested land. The property immediately north of the Site is occupied by an auto body shop and truck repair shop, and to the south is a yard containing scrap metal and derelict vehicles. While these uses may pose a source of contamination to shallow groundwater the Site, nearby WWIS records show relatively competent shallow bedrock approximately 10 m bgs, which mitigates this risk.

The Site and surrounding properties are not connected to the City of Ottawa's wastewater treatment system. As such, there are presumably private on-site wastewater systems at nearby properties.

2.4.3 Water Well Record Review

Thirty (30) water wells were located within approximately 500 m of the Site, all of which were listed for domestic purposes, and all but one were completed in bedrock. The MECP Water Well Information System records are shown on Figure 4, and data is summarized in Appendix B.

Of the bedrock wells identified, the total well depths ranged from 14.6 m to 106.1 m, with an average depth of 59.5 m. The overburden thicknesses ranged from 1.2 m to 9.8 m, with an average overburden thickness of 6.2 m. Reported static water levels ranged from 0.55 to 9.14 m bgs, and water was found at an average depth of 30 m bgs.

Reported well yields ranged from 23 L/min to 75.7 L/min, which is above the MECP minimum rate of 13.7 L/min.

3.0 METHODOLOGY – HYDROGEOLOGICAL ASSESSMENT

McIntosh Perry conducted a detailed hydrogeological investigation at the Site to determine the yield and quality of the existing on-site water well and its ability to meet the supply requirements for the proposed development located at 200 Maple Creek Court, Ottawa, Ontario. As noted in the above sections, the work generally followed the Guidance of MECP Procedure D-5-5: Technical Guideline for Private Wells: Water Supply Assessment. The test well (TW1) will be used as the source of water supply for the proposed development. The well was drilled in April of 2001 by Capital Water Supply Ltd. in accordance with O.Reg. 903 (Wells), as amended. According to the MECP well record, TW1 extends approximately 85.04 m bgs, with a 0.159 m (6 ¼ inch) diameter steel casing extending approximately 10.36 m bgs. The MECP Well Record for TW1 is included in Appendix C.

The initial estimation of the yield and quality of water from the test well was made by the driller during installation in 2001, and was confirmed by McIntosh Perry personnel during a step-test and an 8 hour pumping test. The recommended pumping rate as noted on the well record is 11.36 litres per minute (L/min).

As TW1 had been un-instrumented and unused for some time, it was redeveloped and disinfected to ensure that "fresh" water was available prior to testing. The redevelopment of the well took place on January 30, 2019 and involved the administration of a step-test where pumping rates were increased by regular increments (11.36 L/min, 15.14 L/min, 18.93 L/min) throughout the duration of the test. Disinfection of the well was completed on February 15, 2019; 1.5 litres of liquid chlorine bleach (8.25% sodium hypochlorite) was poured into the well. The well was not pumped within 24 hours after the disinfection, and instead was first pumped after the disinfection during the pumping test on February 25, 2019.

Following redevelopment and subsequent recovery of the well, McIntosh Perry conducted a pumping test on February 25, 2019. The minimum duration for the pumping test per MECP requirements is 6 hours, though it is noted that the City of Ottawa requires 8 hours of pumping for this commercial development. During the testing period, water levels in TW1 were measured using an electronic water level tape. Water quality (pH, temperature, conductivity, turbidity, and total dissolved solids) was also monitored and recorded in the field during the test. Throughout the pumping test, both the quality and drawdown were recorded with samples collected for laboratory analyses within the first and last hours of pumping. Analytes included standard "Subdivision Suite" as well as microbial parameters. At the conclusion of pumping, groundwater elevation was monitored for recovery until 95% recovery or 24 hours, which ever came first. However, during the administration of the recovery portion of the 8-hour pumping test, 95% recovery through manual readings was not able to be achieved as the logger had become lodged within the well. The logger data thus monitored the well for 24 hours after the pump was shut off.

All groundwater samples were collected unfiltered and unchlorinated, directly into clean bottles supplied by the analytical laboratories (Eurofins Laboratories and Paracel Laboratories Ltd., Ottawa, ON). Eurofins Laboratories was used for samples collected during the step-test, and Paracel Laboratories Ltd. was used for

samples collected during the 8-hour pumping test. The samples were kept on ice and shipped directly to Eurofins and Paracel under strict chain of custody procedures. All of the samples were received by the laboratory within 24 hours of collection.

Eurofins and Paracel are fully accredited by SCC/CALA, and have accreditation for Ontario Safe Drinking Water Act (OSDWA) testing.

Drawdown and recovery data from the pumping test were plotted and analyzed using the Cooper-Jacob solution. The hydraulic conductivity (K, m/s) and transmissivity (T, m^2/d) of the aquifer were estimated. Storativity cannot be assessed properly without the use of an additional observation well, which was not available at the time of the test.

4.0 RESULTS

A drawdown curve and tabular data from the pumping test at TW1 are available in Appendix D and Table A1, respectively. A summary of groundwater quality data and the official Laboratory Certificates of Analysis are available in Tables A2 and A3 and Appendix E, respectively.

4.1 Static Conditions

Prior to the initiation of pumping, water levels were measured in TW1. The static groundwater level was recorded at 3.569 m below top of casing (btoc) at the time of the pumping test (t=0). Assigning an arbitrary site benchmark of 115.00 m (local) to the top of the casing, the static water elevation in the well was 111.43 m.

Standing water or evidence of groundwater discharge was not observed at the test well location at the time of the pumping test.

4.2 Step-Test

A level logger was placed in TW1 three weeks prior to well redevelopment and disinfection. Based on three weeks of data, the average water level recorded was 8.34m btoc, with the lowest recorded level measured at 14.4 mbtoc, and highest recorded level measured at 8.032 m btoc.

In the primary stages of the step-test, the pumping rate was set at 3 gallons per minute (GPM) (11.36 L/min). After approximately 2.5 hours, water levels began to stabilize and increase slightly, thereby indicating fresh water being drawn into the water column. The pumping rate was then increased to 4 GPM (15.14 L/min). Water levels began to stabilize again in approximately 3 hours (t=5.5 hours), with recorded water levels of 36-37 m btoc. The pumping rate was subsequently raised to 5 GPM (18.93 L/min), allowed to run for approximately 2.5 hours, after which time the pump was shut off at t=8.25 hours.

Groundwater samples were also collected towards the end of this step-test (450 minutes after the start of the pumping test). These samples were collected unfiltered and unchlorinated, directly into clean bottles supplied by the analytical laboratory (Eurofins Laboratories, Ottawa, ON). The samples were kept on ice and shipped directly to Eurofins under strict chain of custody procedures. All of the samples were received by the laboratory within 24 hours of collection. A copy of this chain-of-analysis and laboratory results are presented in Appendix E.

4.3 Pumping Test

A pumping test was conducted at TW1 under the supervision of McIntosh Perry staff. Water was pumped directly from the test well using a pump and tubing supplied by Saunders Drilling Inc. The water discharge was directed away from the well, and was allowed to flow overland across the Site. At the time of the pumping test, the weather was approximately -5°C, windy and overcast.

All water level measurement data are presented in Table A1, appended to this report.

Based on a short-term (1 hour) pumping test completed by Capital Water Supply Ltd. upon completion of the well in 2001, it was estimated that a pumping rate of approximately 11.36 L/min (3 GPM) would be sustainable at the well. A pumping rate of 11.36 L/min was used for the 8-hour test.

On February 25, 2019, at the commencement of the pumping test, a static water level of 2.825 m btoc was measured in the well. The pump was set at a depth of 82 m, corresponding to an available drawdown of 79.175 m. At 8:59 AM, the pump was turned on and the flow rate adjusted to approximately 11.36 L/min. This pumping rate was maintained with minimal variation for the duration of the test (483 minutes total).

The water level ranged between 2.825 to 18.761 m btoc, with a maximum drawdown of 15.936 m observed. At the end of the test (t = 483 minutes), 11.19 m of the available water column remained above the level logger (set at 28.9 m btoc); this would represent at utilization in the order of approximately 17.6 percent. At 492 minutes following commencement of the pumping test, drawdown was recorded at 10.135 m (12.96 m btoc). This represents approximately 36.4% recovery. Recovery was not able to be fully assessed through manual water level readings as the water level tape became lodged in the well against the pump wiring. As such, the remainder of the recovery was monitored through level logger data. The final recovery (from level logger measurements) was achieved approximately 600 minutes after the start of the pumping test at 3.218 m btoc. Results of this data can be found in Table A1.

4.4 Well Yield

The pumping test undertaken by McIntosh Perry provides a reasonable indication of the yield for TW1. During this test, approximately 5,450 L of water was pumped from the well; this volume exceeds the daily demand for water for an office and warehouse (2550 L/day), as provided by the Ottawa Septic System Office (see Appendix G for details).

4.5 Transmissivity

A summary of the well and hydrogeological properties determined during the testing work at the Site are presented in Appendix D. A transmissivity of 0.2 m^2/d was calculated using the Cooper-Jacob method. Assuming an aquifer thickness of 74.676 m (corresponding to the interval between the bottom of the casing and the bottom of the well), a hydraulic conductivity of 2.9 x 10^{-8} m/s was calculated. This value is generally consistent with sandstone, limestone, and dolostone, all of which are described by MECP WWIS records in the area.

Storativity (S) could not be calculated as no observation wells were available for measurement at the time of the pumping test.

4.6 Long Term Yield

The long-term yield (maximum recommended pumping rate) of Test Well 1 was estimated based on the following factors:

- Observations during eight-hour pumping test
- Calculated properties

The theoretical long-term safe yield of the pumping well may be calculated by the Farvolden Method. The calculations for Transmissivity are presented in Appendix D.

$$Q_{20} = 0.68\, T\, Ha\, S_f$$

Where:

- Q_{20} is the twenty year safe yield
- T is the transmissivity
- Ha is the available water column height
- S_f is a safety factor (0.7)

Based on the Farvolden Method, calculations indicate that a twenty year safe yield for TW1 is in the order of 7.8 L/min. This means that TW1 could sustain continuous pumping for 20 years at this rate, which is an improbable usage rate with normal water consumption. With normal use, the pump will cycle on and off on a much shorter time scale, allowing the well to recharge.

It should also be noted that the well driller's recommended pumping rate for TW1 is 11.36 L /min (3 GPM). Therefore, the test rate administered during the 8 hour pumping test was 11.36 L/min. Based on the results of the step test in which the pumping rate (set at 15.14 L/min) had reached a plateau/became stable, as well as the results of the pumping test in which the pumping rate (set at 11.36 L/min) also became stable approximately 390 minutes after the pumping test began, McIntosh Perry is of the opinion that the aquifer is capable of supplying water at a flow rate which is greater than the minimum flow rate of 13.7 L/min as outlined in Procedure D-5-5.

4.7 Water Quality

Laboratory Certificates of Analysis for samples collected from TW1 are presented in Appendix E. A summary of field and laboratory results from TW1 is presented in Tables A2 and A3. One sample (TW1-1) was taken during the step-test on January 30, 2019, and two (TW1-1, TW1-2) were taken during the pumping test on February 25, 2019. During both tests, the samples were taken directly from the on-site pump tubing into laboratory supplied containers. The sample from the step-test was labelled as TW1-1. The water samples taken on February 25, 2019 were labelled TW1-1 and TW1-2, respectively.

All Laboratory Certificates of Analysis for both sampling events are presented in Appendix E. In addition, all analytical results were compared to the Ontario Drinking Water Standards, Objectives, and Guidelines (ODWS).

Based on the analytical results from January 30, 2019 and February 25, 2019, no Maximum Acceptable Concentrations (MAC) as per the Ontario Drinking Water Standards (ODWS) were exceeded. Analytical testing indicates that water quality for TW1 is suitable for potable purposes; however, some Aesthetic Objectives (AO) and Operational Guidelines (OG) were exceeded.

Criteria for the following parameters were exceeded in sample TW1-1 during the step-test:

Operational Guidelines (OG):

- Hardness: 195 (TW1-1) – OG 100 mg/L

Aesthetic Objectives (AO):

- Sulphide: 2.13 mg/L (TW1-1) AO 0.05 mg/L
- Turbidity: 17.9 NTU (TW1-1) AO 5.0 NTU
- Iron: 0.54 mg/L (TW1-1) AO 0.3 mg/L

Criteria for the following parameters were exceeded in sample TW1-1 and TW1-2 during the 8-hour pumping test:

Operational Guidelines (OG):

- Hardness: 244 mg/L (TW1-1) and 245 mg/L (TW1-2) – OG 100 mg/L

Aesthetic Objectives (AO):

- Colour: 42 TCU (TW1-1) – AO 5 TCU
- Sulphide: 0.35 mg/L (TW1-1) and 2.92 mg/L (TW1-2) AO 0.05 mg/L
- Turbidity: 24.8 NTU (TW1-1) and 9.9 NTU (TW1-2) AO 5.0 NTU
- Iron: 2.43 mg/L (TW1-1) AO 0.3 mg/L
- Manganese: 0.069 mg/L (TW1-1) AO 0.05 mg/L

Elevated colour results were found only during the pumping test. Elevated colour is likely related to the presence of iron and manganese in the water; the iron concentration was recorded at 2.43 mg/L within the first sample taken (TW1-1), then was observed to drop to levels below the detection limit within the second sample taken (TW1-2). It is possible that either seasonal fluctuations or elevated oxidation conditions due to recent redevelopment were responsible for the colour exceedance.

Turbidity measurement during the pumping test was first recorded at 15.2 NTU (at 120 minutes after the pump was turned on), and then dropped to 0.95 NTU (at 480 minutes after the pump was turned on). Thus, turbidity measurements taken during the field met criteria during the course of the pumping test.

Additionally, while the detected concentration for sodium in all samples taken during the step test and pumping test met the ODWS, it is noted that the detected concentrations exceeded the “warning level” 20 mg/L benchmark utilized for individuals on sodium restricted diets; future users should be notified.

All noted OG and AO parameter exceedances of ODWS can be addressed through treatment.

No maximum acceptable concentrations (MAC) were exceeded in TW1-1 (step test), or TW1-1 and TW1-2 (pumping test).

4.8 Impact Assessment

Approximately 1.2 to 9.8 m of overburden is present in the area based on a review of well records in the vicinity. At TW1 there was 8.7 m of overburden (consisting of hardpan) as documented by the driller. Sufficient depths of overburden exist to permit the construction of a septic system. Additional investigation will be required at the design stage to confirm suitability and infiltration capacity of overburden material at the Site.

The Site is hydrogeologically sensitive. Soil thickness within the vicinity of TW1 (consisting of sand and gravel and/or clay) varies from 1.2 to 9.8 m. It is not located in an area of known karst topography, and the Site is well-drained with no springs observed.

5.0 WATER TREATMENT

The use of disinfection such as an ultraviolet (UV) system, although not required, may be desired. Based on the observed water quality there should not be any hindrances to UV disinfection.

The Langelier Saturation Index (LSI) and Ryznar Stability Index (RSI) were calculated for TW1 (Appendix E). These results indicate that scale formation is possible, though not likely. This is to be expected in areas of carbonate bedrock.

For aesthetic reasons, water treatment such as softening may be desired. It is noted that softening with a standard salt (NaCl) softener will increase the sodium and chloride concentrations, relative to those noted in Table A3. Potassium salt softeners are therefore recommended.

If desired, elevated manganese and associated colour can be removed by ion exchange, filtration, or reverse osmosis.

6.0 RECOMMENDATIONS

6.1 Water Supply

Well Construction

- Any newly installed wells or a modification to the existing well situated on the proposed development area should have at least 6 m of casing and adhere to all other requirements of O.Reg. 903, as amended.
- Any newly installed test wells should be appropriately developed and tested prior to domestic use.

Well Yield

- Well yields in the order of 11.36 L/min appear to be sustainable based on the pump test data and calculations performed.

Water Quality and Treatment

- Operational Guidelines for Hardness was exceeded in TW1 during the step-test and in both samples for the pumping test (TW1-1 and TW1-2).
- No ODWS Maximum Acceptable Concentration (MAC) was exceeded in TW1 during the step-test or pumping test laboratory results; groundwater therefore meets all applicable health-related standards at this time.
- Sodium met the ODWS but concentrations exceeded the “warning level” 20 mg/L benchmark for individuals on sodium restricted diets. Future users should be notified. For treatment, water may be softened through sodium ion exchange.
- Sulphide exceeded aesthetic objective guidelines in all three water samples taken at TW1. Effective treatment options include adsorption, aeration, chlorination, filtration, greensand filtration, and oxidation.
- Colour only displayed exceedances in the first sample (TW1-1) taken during the pumping test, while levels dropped below detection measurements in the second sample (TW1-2).
- The water exceeded in turbidity above aesthetic objectives in all three samples taken (TW1-1 for step test, and TW1-1 and TW1-2 during pumping test). However, during the pumping test, turbidity measurements dropped from 15.2 NTU to 0.95 NTU.
- Hardness exceeded operational guidelines in all three samples taken (TW1-1 for step test, and TW1-1 and TW1-2 during pumping test).
- The water exceeded above aesthetic objectives in iron for the step-test sample (TW1-1) and first sample taken during the pumping test (TW1-1), but was within criteria for sample TW1-2.
- The first sample taken during the pumping test (TW1-1) had exceedances of manganese above aesthetic objectives, while manganese fell below detection levels within the second sample taken (TW1-2).
- If water softening is desired, the use of potassium salts (KCl) is recommended.

6.2 Wastewater Treatment

Potential Septic Systems

- Based on the depth of overburden at TW1, as well as review of records for other wells within the vicinity, sufficient depths of overburden exist on-site to permit the construction of a septic system. Additional investigation will be required at the design stage to confirm suitability and infiltration capacity of overburden material at the site.
- As the property is greater than 1.0 hectares, and therefore has sufficient spatial area to reduce nitrate-nitrogen to an acceptable concentration and eliminate the risk of boundary limits which may be exceeded by individual systems (as outlined by Procedure D-5-4).
- Any septic systems must be constructed with all appropriate setbacks and stipulations as per Ontario Regulations and the Ontario Building Code.

Potential Lot Layout

- It is assumed that the proposed development is for a pre-engineered building; this assessment therefore does not address the potential for more than one water well user or septic system on the proposed lot.

7.0 LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by McIntosh Perry Consulting Engineers Ltd. for Kris and Dana Norris of NCM Hydrovac Services. It is intended for the sole and exclusive use of Kris and Dana Norris of NCM Hydrovac Services, their affiliated companies and partners and their respective insurers, agents, employees, advisors, and reviewers. The report may not be relied upon by any other person or entity without the express written consent (Reliance Letter) of McIntosh Perry Consulting Engineers Ltd.

Any use which a third party makes of this report, or any reliance on decisions made based on it, without a reliance letter are the responsibility of such third parties. McIntosh Perry Consulting Engineers Ltd. accept no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The investigation undertaken by McIntosh Perry Consulting Engineers Ltd. with respect to this report and any conclusions or recommendations made in this report reflect McIntosh Perry Consulting Engineers Ltd. judgment based on the Site conditions observed at the time of the site inspection on the date(s) set out in this report and on information available at the time of the preparation of this report.

This report has been prepared for specific application to this site and it is based, in part, upon visual observation of the Site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future Site conditions, portions of the Site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Substances other than those addressed by the investigation described in this report may exist within the Site, substances addressed by the investigation may exist in areas of the Site not investigated and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken.

If site conditions or applicable standards change or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

We trust that this information is satisfactory for your present requirements. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,

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8.0 REFERENCES

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OGS Earth, 2019. Ontario Ministry of Northern Development, Mines and Forestry, - Ontario Geological Survey Earth – for Google Earth. Bedrock classification data for Eastern Ontario.

Theis, C.V., 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, Trans. Amer. Geophys. Union, Vol. 16, pp. 519-524.

MOE, 1996. Procedure D-5-5 Technical Guideline for Private Wells: Water Supply Assessment.

MECP (Ontario Ministry of the Environment, Conservation and Parks). 2018. Ontario Ministry of the Environment, Conservation and Parks Water Well Record Database (queried August 2018).

HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

TABLES

McINTOSH PERRY

Table A1
Summary of Water Level Data
Pumping Test - TW1 (NCM) - 25-Feb-2019

TOC Elevation (assumed)	115	m AD (Above Datum)
Static Water Level	2.825	m BTOC
Static Water Elevation	112.175	m AD (Above Datum)
95% Recovery	3.6218	m BTOC
	111.3782	m AD (Above Datum)

Elapsed Time (minutes)	Elapsed Time (Recovery)	Water Level (m BTOC)	Water Level (m ASL)	Drawdown (m)	Notes
0		2.825	112.175	0	
0.25		3.381	111.619	0.556	
0.5		3.525	111.475	0.7	
0.75		3.801	111.199	0.976	
1		3.929	111.071	1.104	
1.5		4.281	110.719	1.456	
2		4.401	110.599	1.576	
2.5		4.523	110.477	1.698	
3		4.829	110.171	2.004	
3.5		5.375	109.625	2.55	
4		5.581	109.419	2.756	
4.5		5.771	109.229	2.946	
5		5.939	109.061	3.114	
5.5		6.125	108.875	3.3	
6		6.331	108.669	3.506	
6.5		6.435	108.565	3.61	
7		6.692	108.308	3.867	
7.5		6.8995	108.1005	4.0745	
8		7.18	107.82	4.355	
8.5		7.313	107.687	4.488	
9		7.49	107.51	4.665	
9.5		7.651	107.349	4.826	
10		7.881	107.119	5.056	
12		8.492	106.508	5.667	
14		9.131	105.869	6.306	
16		9.671	105.329	6.846	
18		10.165	104.835	7.34	
20		10.675	104.325	7.85	

Table A1
Summary of Water Level Data
Pumping Test - TW1 (NCM) - 25-Feb-2019

TOC Elevation (assumed)	115	m AD (Above Datum)
Static Water Level	2.825	m BTOC
Static Water Elevation	112.175	m AD (Above Datum)
95% Recovery	3.6218	m BTOC
	111.3782	m AD (Above Datum)

Elapsed Time (minutes)	Elapsed Time (Recovery)	Water Level (m BTOC)	Water Level (m ASL)	Drawdown (m)	Notes
25		11.778	103.222	8.953	Sampled TW1-1 at 25 minutes
30		12.655	102.345	9.83	
35		13.373	101.627	10.548	
40		13.495	101.505	10.67	
45		14.49	100.51	11.665	
50		15.061	99.939	12.236	
55		15.295	99.705	12.47	
60		15.624	99.376	12.799	
75		16.485	98.515	13.66	
90		17.041	97.959	14.216	
105		17.439	97.561	14.614	
120		17.711	97.289	14.886	
135		17.881	97.119	15.056	
150		18.035	96.965	15.21	
165		18.159	96.841	15.334	
180		18.25	96.75	15.425	
195		18.315	96.685	15.49	
210		18.403	96.597	15.578	
225		18.49	96.51	15.665	
240		18.551	96.449	15.726	
270		18.643	96.357	15.818	
300		18.723	96.277	15.898	
330		18.745	96.255	15.92	
360		18.693	96.307	15.868	
390		18.741	96.259	15.916	
420		18.735	96.265	15.91	
450		18.751	96.249	15.926	Sampled TW1-2 at 450 minutes
480		18.761	96.239	15.936	

Table A1
Summary of Water Level Data
Pumping Test - TW1 (NCM) - 25-Feb-2019

TOC Elevation (assumed)	115	m AD (Above Datum)
Static Water Level	2.825	m BTOC
Static Water Elevation	112.175	m AD (Above Datum)
95% Recovery	3.6218	m BTOC
	111.3782	m AD (Above Datum)

Elapsed Time (minutes)	Elapsed Time (Recovery)	Water Level (m BTOC)	Water Level (m ASL)	Drawdown (m)	Notes
480.25	0.25	18.705	96.295	15.88	Pump off at 8 hr 4 min elapsed (5:03 pm)
480.5	0.5	18.495	96.505	15.67	
480.75	0.75	18.381	96.619	15.556	
481	1	18.216	96.784	15.391	
481.5	1.5	17.912	97.088	15.087	
482	2	17.62	97.38	14.795	
482.5	2.5	17.329	97.671	14.504	
483	3	17.057	97.943	14.232	
483.5	3.5	16.761	98.239	13.936	
484	4	16.542	98.458	13.717	
484.5	4.5	16.264	98.736	13.439	
485	5	15.993	99.007	13.168	
485.5	5.5	15.762	99.238	12.937	
486	6	15.501	99.499	12.676	
486.5	6.5	15.269	99.731	12.444	
487	7	15.038	99.962	12.213	
487.5	7.5	14.805	100.195	11.98	
488	8	14.59	100.41	11.765	
488.5	8.5	14.369	100.631	11.544	
489	9	14.164	100.836	11.339	
489.5	9.5	13.935	101.065	11.11	
490	10	13.7	101.3	10.875	
492	12	12.96	102.04	10.135	

NOTES
TOC: Top of Casing
m BTOC: metres below top of casing
m AD: metres above datum

Table A2
Summary of Field Data
Pumping Test - TW1 - 25-Feb-2019

Time Elapsed (h:mm)	WL (mBTOC)	Temp (°C)	pH	TDS (ppm)	Conductivity (µS/cm)	Turbidity (NTU)	Flow (GPM)
0:25	11.778	9.2	7.57	293	585	-	-
0:40	13.485	7.9	8.14	302	610	-	-
0:55	15.295	7	7.83	348	703	-	3
1:30	17.04	5.5	7.91	380	764	-	-
1:45	17.44	4.5	7.51	380	743	-	-
2:00	17.71	6.2	8.07	362	723	15.2	-
2:15	17.88	7.2	6.13	327	650	13.5	3
2:30	18.04	-	-	-	-	11.5	-
2:45	18.16	6.7	7.95	304	602	10.73	-
3:00	18.25	8.5	7.95	290	580	8.4	-
3:15	18.32	5.9	8.32	268	539	7.49	-
3:30	18.40	6.4	8.08	262	525	5.82	-
3:45	18.49	6.6	7.94	267	522	3.82	-
4:00	18.55	6.7	7.93	265	523	3.03	-
4:15	-	4.7	8.05	272	546	2.73	3
4:30	18.65	7.3	7.97	141	281	2.36	-
4:45	-	5.1	8.22	43	89	2.12	-
5:00	18.72	5.6	8.09	65	128	1.91	-
5:15	-	5.2	7.98	36	64	1.75	-
5:30	18.75	4.8	8.04	65	126	0.98	-
5:45	-	4.7	8.24	55	107	0.93	-
6:00	18.70	5.1	8.13	135	264	1.15	3
6:15	-	6.1	7.98	110	242	1.07	-
6:30	18.74	6.9	7.89	199	401	1.16	-
6:45	-	6.1	7.94	251	508	1.05	-
7:00	18.74	5.6	7.97	254	513	0.9	-
7:15	-	6.3	7.91	264	534	0.91	-
7:30	18.75	5.5	7.8	226	453	1	-
7:45	-	5.0	7.81	94	184	0.84	-
8:00	18.76	4.5	7.84	264	529	0.95	-

Notes:

mBTOC metres below top of casing
NTU Nephelometric Turbidity Unit

Table A3
Summary of Laboratory Results
200 Maple Creek Court, Ottawa, ON

					Step-test	Pumping test	Pumping test
Sample ID	Units	MDL	ODWSOG	Limit Type	TW1-1 1409420	TW1-1 1409421	TW1-2 1409422
Sample Date					30-Jan-19	25-Feb-19	25-Feb-19
Microbiological Parameters							
E. Coli	ct/100 mL	1	0	MAC	0	<1	<1
Fecal Coliforms	ct/100 mL	1	-		0	<1	<1
Total Coliforms	ct/100 mL	1	0	MAC	1	<1	<1
Heterotrophic Plate Count	ct/1 mL	10	-		19	390	<10
Anions							
Chloride	mg/L	1	250	AO 250	64	68	50
Fluoride	mg/L	0.1	1.5	MAC 1.5	0.93	0.9	0.9
Nitrite as N	mg/L	0.05	1	MAC 1.0	<0.1	<0.05	<0.05
Nitrate as N	mg/L	0.1	10	MAC 10.0	<0.1	<0.1	<0.1
Sulphate	mg/L	1	500	AO 500	34	38	33
General Chemistry							
Alkalinity as CaCo3	mg/L	5	500	OG 500	219	211	217
Colour	TCU	2	5	AO 5	<2	42	5
Conductivity	uS/cm	5	-		642	654	583
pH		0.1	-	6.5-8.5	8.1	7.8	7.9
Sulphide	mg/L	0.02		A0 0.05	2.13	0.35	2.92
TDS	mg/L	10	500	AO 500	417	422	392
Turbidity	NTU	0.1	5	AO 5.0	17.9	24.8	9.9
Hardness	mg/L	-	-	OG 100	195	244	245
Ion Balance	mg/L	0.01	-		0.93		
Metals							
Calcium	mg/L	0.1	-		4.2	60.2	60.7
Iron	mg/L	0.1	0.3	AO 0.3	0.54	2.43	0.106
Potassium	mg/L	0.1	-		5	3.65	4.11
Magnesium	mg/L	0.2	-		22	22.7	22.8
Manganese	mg/L	0.005	0.05	AO 0.05	0.02	0.069	0.009
Sodium	mg/L	0.2	200	AO 200	55	54.3	43.6
Inorganics							
DOC	mg/L	0.5	5	AO 5	1.7	1.6	1.1
N-NH3	mg/L	0.01	-		0.11	0.03	0.1
Phenols	mg/L	0.001	-		<0.001	<0.001	<0.001
Tannin & Lignin	mg/L	0.1	-		<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.1	-		0.2	<0.1	<0.1

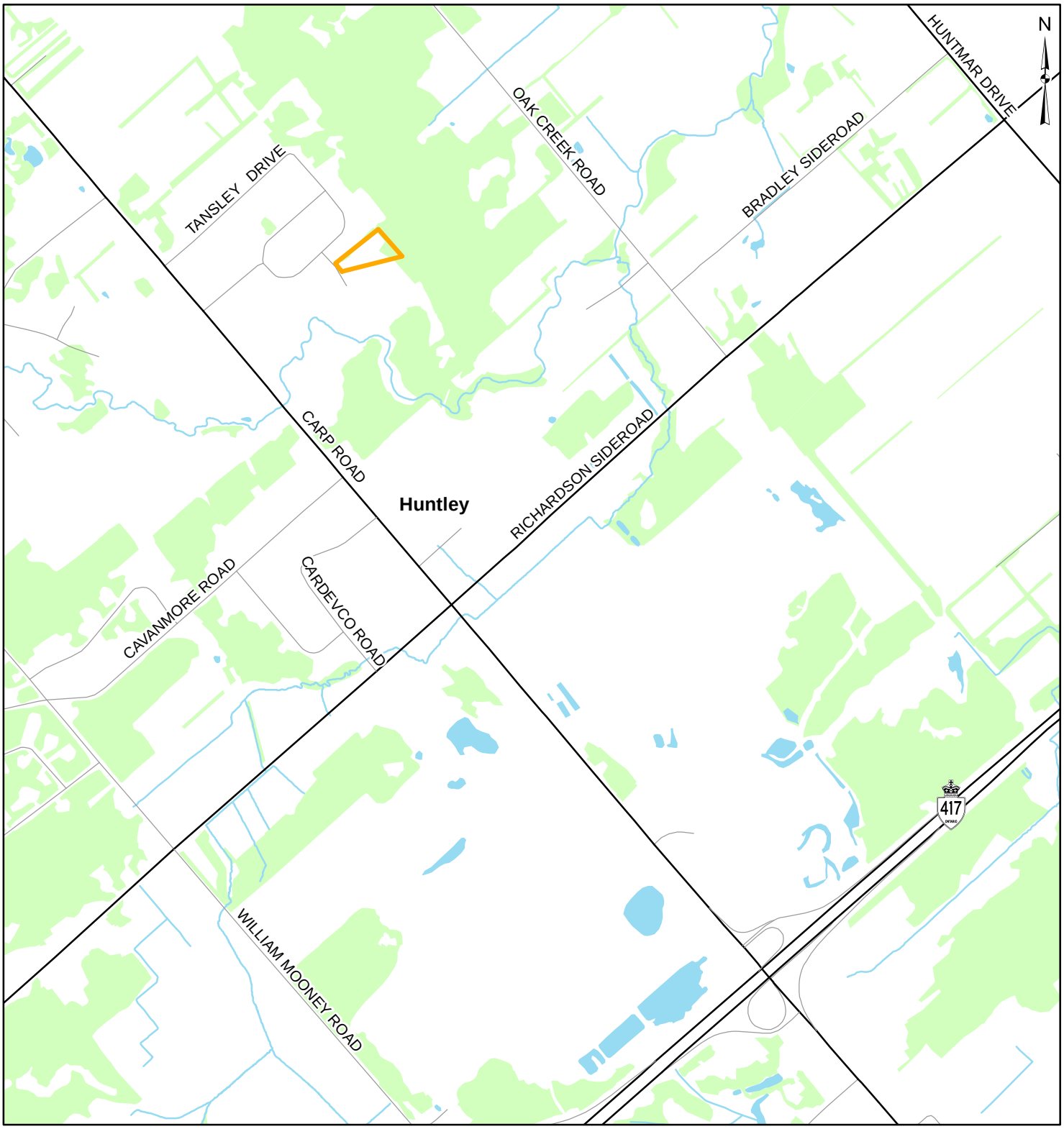
Notes:

MDL	Method Detection Limit
ODWSOG	Ontario Drinking Water Standards, Objectives, and Guidelines (MOECC, 2003 rev. 2006; PIBs 4449e
AO	Aesthetic Objective
MAC	Maximum Allowable Concentration (Health-Related Parameter)
OG	Operational Guideline
ND	Non detectable (below MDL)
mg/L	Milligrams per litre
TCU	True Colour Units
uS/cm	Microsemens per centimeter
NTU	Nephelometric Turbidity Units
ct/100 mL	Number of bacteria-forming colonies per 100 mL
	Exceedance of MAC Parameters
	Exceedance of AO/ODWS/OG Parameters

HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

FIGURES

McINTOSH PERRY



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Scale 1:20,000 Metres

LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2019.
Note: Property and severance boundaries are approximate.

CLIENT: NCM HYDROVAC SERVICES

PROJECT: HYDROGEOLOGICAL STUDY
200 MAPLE CREEK COURT

TITLE: SITE LOCATION

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO: CP-18-0512		FIGURE:
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Checked By	DA	

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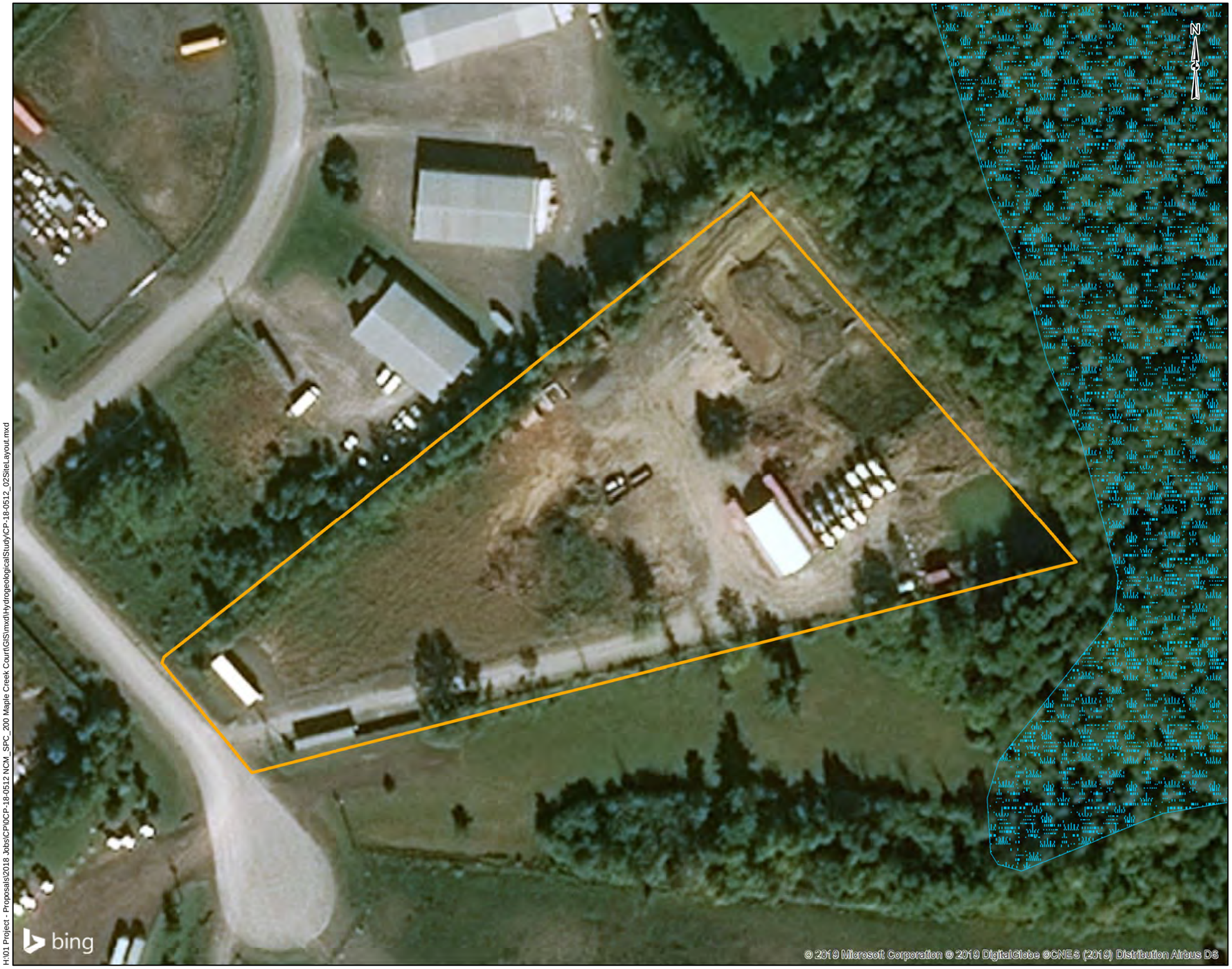

LEGEND

- Site Location
- Unevaluated Wetland

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources, 2019.
Note: Property and severance boundaries are approximate.

0 12.5 25 50
Scale 1:1,000 Metres

CLIENT: NCM HYDROVAC SERVICES

PROJECT: HYDROGEOLOGICAL STUDY
200 MAPLE CREEK COURT

TITLE: SITE LAYOUT

McINTOSH PERRY
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PROJECT NO: CP-18-0512		FIGURE:
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Checked By	RL	

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LEGEND

SymbolID

- Site Location
- Property with existing well to be pump tested
- Proposed properties to be severed
- Contour
- Watercourse
- Unevaluated Wetland

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources, 2019.

Note: Property and severance boundaries are approximate.

0 75 150 300

Scale 1:6,000 Metres

CLIENT: NCM HYDROVAC SERVICES

PROJECT: HYDROGEOLOGICAL STUDY
200 MAPLE CREEK COURT

TITLE: SURROUNDING LAND USE

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PROJECT NO: CP-18-0512		FIGURE:
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Checked By	RL	

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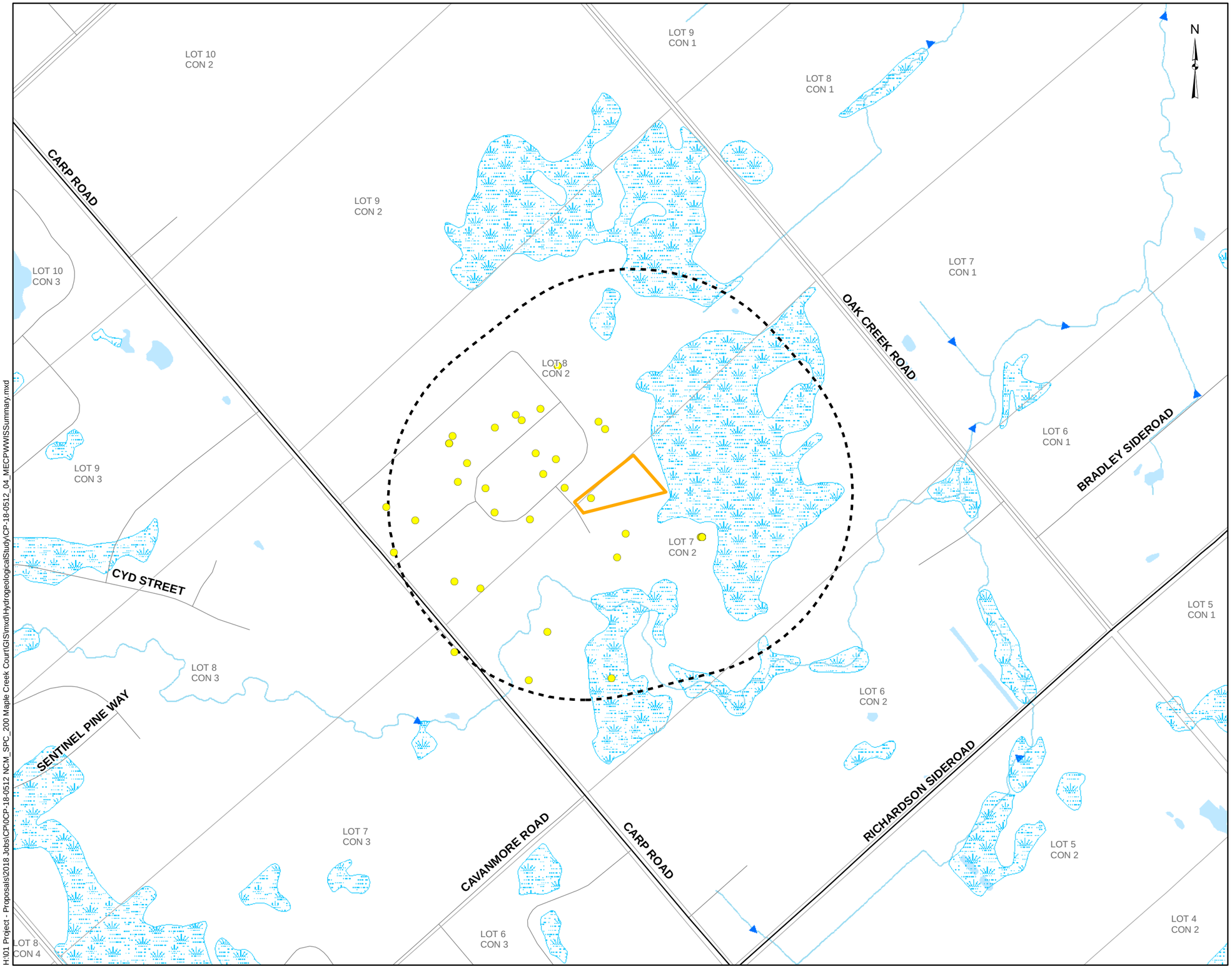

LEGEND

- MECP Well
- 500m Radius
- Site Boundary
- Lot & Concession
- Local Road
- Major Road
- Watercourse
- Waterbody
- Unevaluated Wetland

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources, 2019.

Note: Property and severance boundaries are approximate.

0 125 250 500

Scale 1:10,000 Metres

CLIENT: NCM HYDROVAC SERVICES

PROJECT: HYDROGEOLOGICAL STUDY
200 MAPLE CREEK COURT

TITLE: MECP WWIS SUMMARY

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115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
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PROJECT NO: CP-18-0512		FIGURE:
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Checked By	DA	

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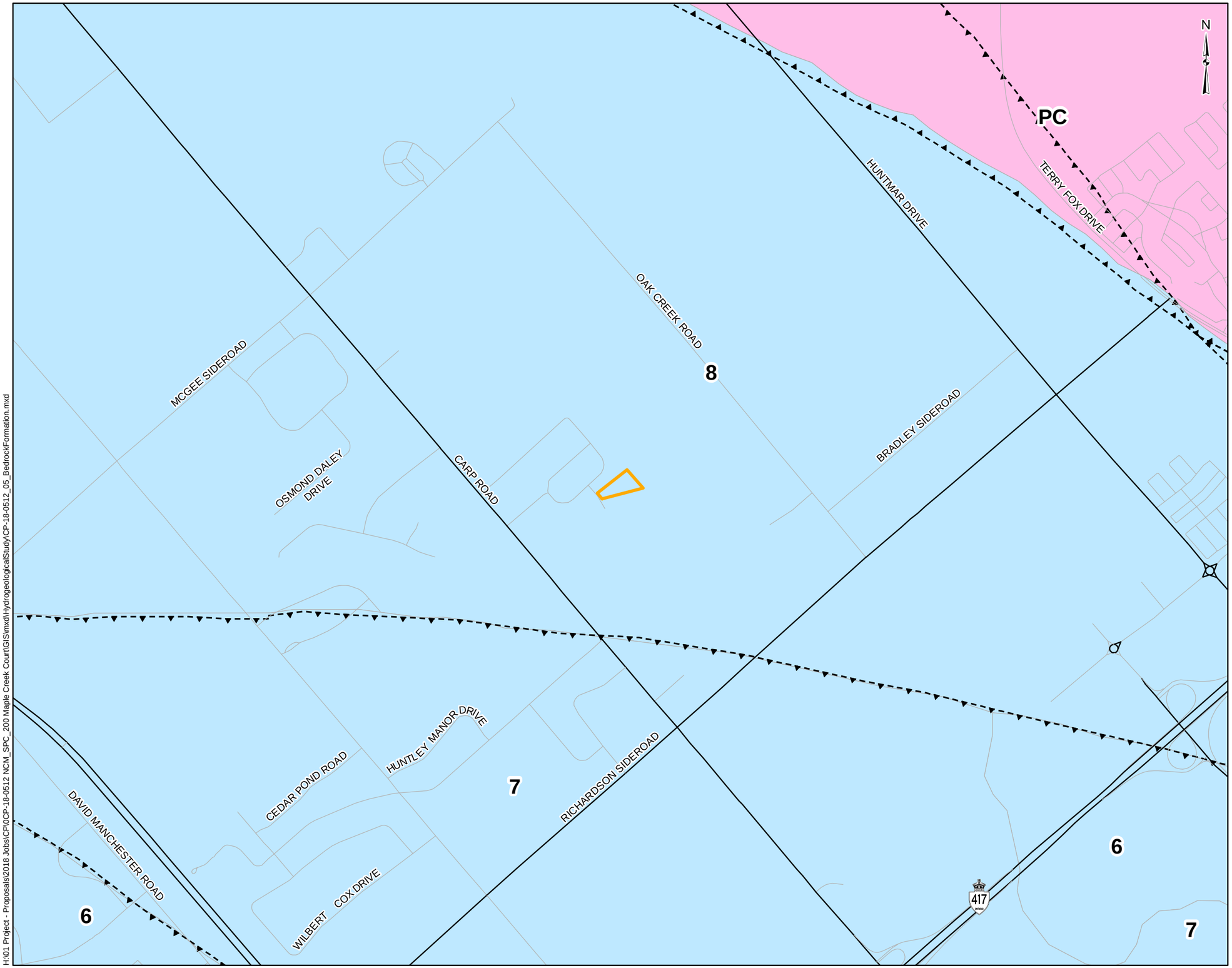

LEGEND

- Site Boundary
- Local Road
- Major Road
- Fault

Bedrock Geology

Upper Ordovician

- 13 Queenston Formation: Red to light greenish grey siltstone and shale, with interbeds of silty bioclastic limestone in lower part
- 12 Carlsbad Formation: Interbedded dark grey shale, fossiliferous calcareous siltstone, and silty bioclastic limestone
- 11 Billings Formation: Dark brown to black shale, with laminations of calcareous siltstone, and silty bioclastic limestone
- 10 Eastview Formation: Interbedded sublithographic to fine crystalline limestone and dark brown to dark grey shale

Middle to Upper Ordovician

- 9 Lindsay Formation: Sublithographic to fine crystalline limestone, nodular in part, with interbeds of calcarenite and shale
- 8 Verulam Formation: Interbedded bioclastic limestone, sublithographic to fine cyrstalline limestone
- 7 Bobcaygeon Formation: Interbedded sitly dolomite, lithographic to fine crystalline limestone,oolitic limestone, shale, and fine-grained calcareous quartz sandstone
- 6 Gull River Formation: Interbedded silty dolomite,lithographic to fine crystalline limestone, oolitic limestone, shale, and fine-grained calcareous quartz sandstone
- 5 Rockliffe Formation: Interbedded fine-grained light greenish grey quartz sandstone, shaley limestone and shale, locally congomerate at base, interbeds of calcarenite and silty dolostone in upper part

Lower Ordovician

- 4 Oxford Formation: Sublithographic to fine crystalline dolostone
- 3 March Formation: Interbedded quartz sandstone, sandy dolostone, and dolostone

Cambrio Ordovician

- 2 Nepean Formation: Fine to coarse grained quartz sandstone, partially calcareous in upper part
- 1 Covey Hill Formation: Noncalcareous feldspathic, fine to coarse grained quartz sandstone and quartz pebbl conglomerate

Precambrian

- PC Precambrian Formation: Undifferentiate metamorphic and igneous rocks

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2019.
Urban Geology of the National Captial Area, Bélanger, R; Geological Survey of Canada, Open File 5311, 2008

0 250 500 1,000
Scale 1:20,000 Metres

CLIENT: NCM HYDROVAC SERVICES

PROJECT: HYDROGEOLOGICAL STUDY 200 MAPLE CREEK COURT

TITLE: BEDROCK FORMATION

McINTOSH PERRY
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Checked By	DA	

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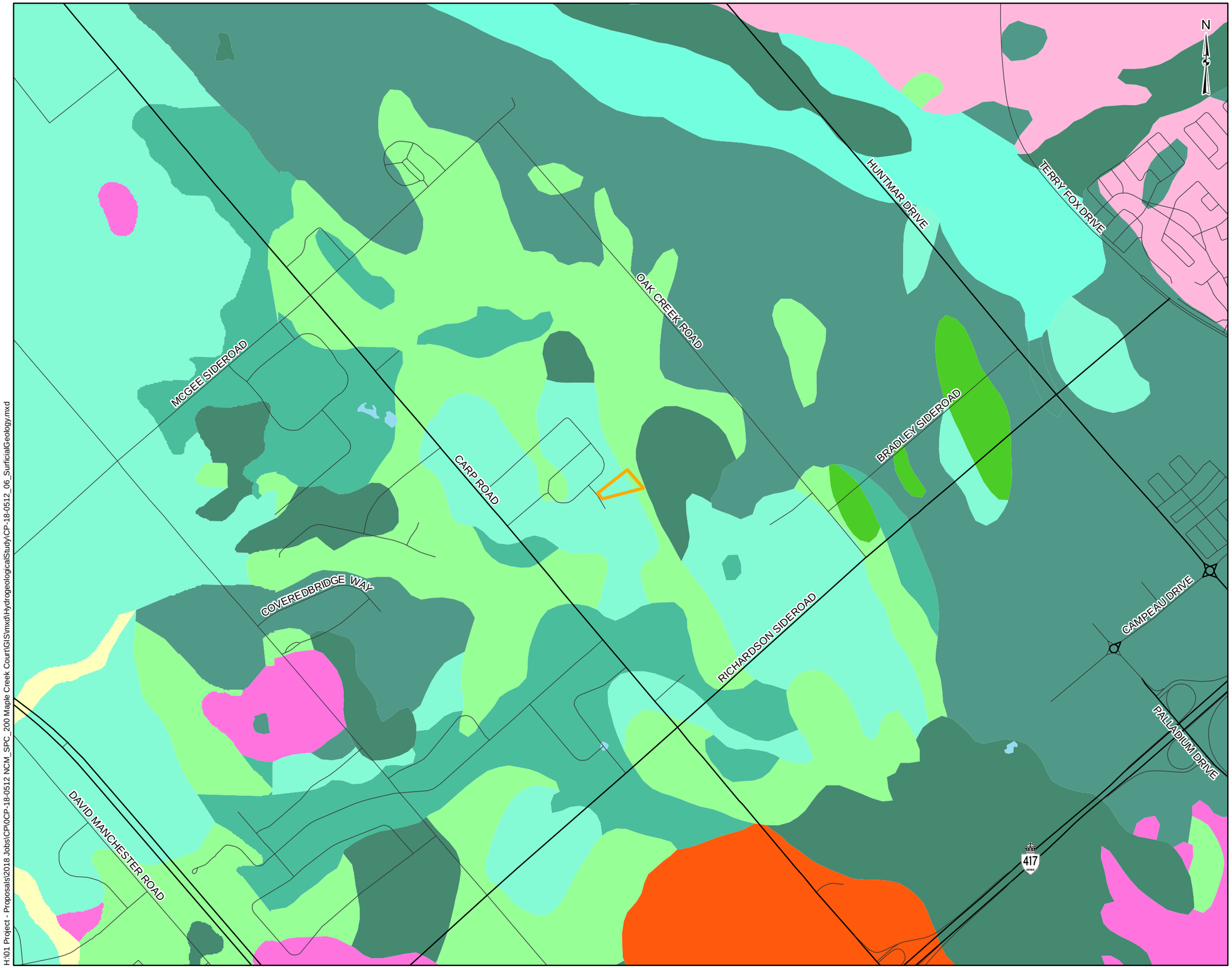

LEGEND

- Site Boundary
- Local Road
- Major Road

Surficial geology

Description

- Organic Deposits
- Sand Dunes
- Floodplains, sand, silt, clay
- Fluvial Terraces, sand, silt
- Reworked Marine Sediments
- Beach Formations
- Sand, reworked glaciofluvial
- Deltaic and Estuarian Deposits
- Marine Deposits, clay, silt
- Erosional Terraces
- Glaciofluvial Deposits
- Till, plain
- Till, drumlinized
- Till, hummocky to rolling
- Paleozoic Bedrock
- Precambrian Bedrock
- Water

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2019.
Surficial Geology of Southern Ontario provided by the Ontario Geological Survey, Miscellaneous Release - Data 128 - Revised

0 250 500 1,000
Scale 1:20,000 Metres

CLIENT: NCM HYDROVAC SERVICES

PROJECT: HYDROGEOLOGICAL STUDY
200 MAPLE CREEK COURT

TITLE: SURFICIAL GEOLOGY

McINTOSH PERRY
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PROJECT NO: CP-18-0512		FIGURE:
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GIS	LC	
Checked By	DA	

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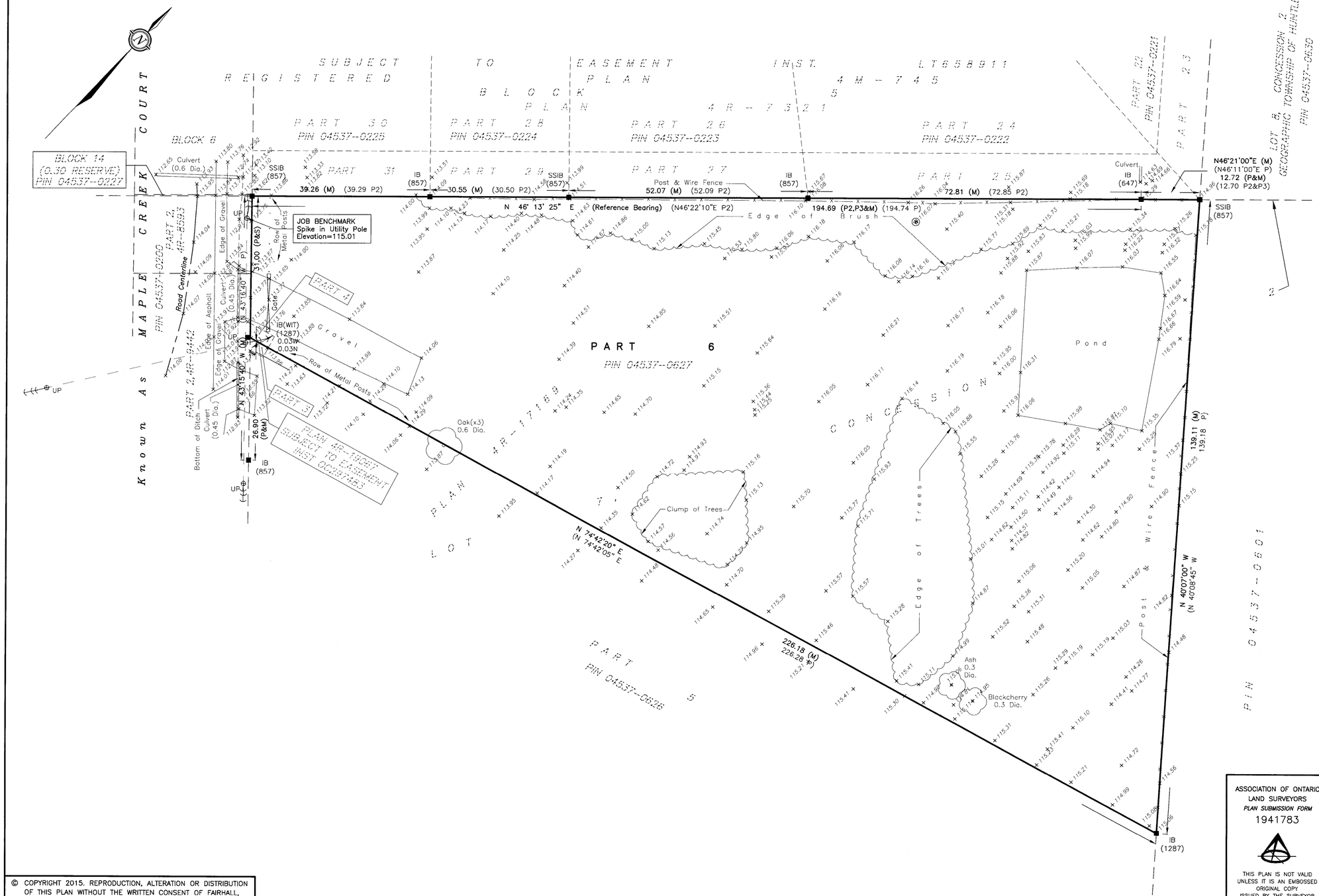
HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX A
SURVEY PLAN

McINTOSH PERRY

METRIC
DISTANCES AND ELEVATIONS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048



TOPOGRAPHIC SURVEY OF

PART OF LOT 7 CONCESSION 2 GEOGRAPHIC TOWNSHIP OF HUNTLEY CITY OF OTTAWA

SCALE 1 : 500

0 10 20 50 metres

FAIRHALL, MOFFATT & WOODLAND LIMITED

ONTARIO LAND SURVEYORS

ELEVATION NOTES

1. ELEVATIONS SHOWN HEREON ARE REFERRED TO GEODETIC DATUM.
2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION SHOWN ON THIS DRAWING.

UTILITY NOTES

1. THIS DRAWING CANNOT BE ACCEPTED AS ACKNOWLEDGING ANY UNDERGROUND UTILITIES AND IT WILL BE THE RESPONSIBILITY OF THE USER TO CONTACT THE RESPECTIVE UTILITY AUTHORITIES FOR CONFIRMATION OR LOCATION.
2. BEFORE ANY WORK INVOLVING PROBING, EXCAVATING, ETC., A FIELD LOCATION OF UNDERGROUND PLANT BY THE PERTINENT UTILITY AUTHORITY IS MANDATORY.

NOTES

BEARINGS HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE NORTHERLY LIMIT OF PART 6 AS SHOWN ON PLAN 4R-17169 HAVING A BEARING OF N46°13'25"E.

LEGEND

■	– SURVEY MONUMENT FOUND
IB	– IRON BAR
SSIB	– SHORT STANDARD IRON BAR
(WIT)	– WITNESS
(P)	– PLAN 4R-17169
(P2)	– PLAN 4R-7321
(P3)	– REGISTERED PLAN 4M-745
(M)	– MEASURED
(S)	– SET
DIA.	– DIAMETER
PIN	– PROPERTY IDENTIFIER NUMBER
(647)	– H. R. FARLEY, O.L.S.
(857)	– FAIRHALL, MOFFATT & WOODLAND LTD., O.L.S.
(1287)	– FARLEY, SMITH & DENIS SURVEYING LTD., O.L.S.
⊗ UP	– UTILITY POLE
←	– GUY WIRE AND ANCHOR
⊙	– DECIDUOUS TREE
— —	– OVERHEAD UTILITY WIRES
E	– EAST
N	– NORTH

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT, THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON MAY 29, 2015.

2015/06/11
DATE

JOHN H. GUTRI
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
1941783

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

Fairhall Moffatt & Woodland
LIMITED
ONTARIO LAND SURVEYORS
OTTAWA
Surveying and Land Information Services
100-600 TERRY FOX DRIVE, KANATA, ONTARIO K2L 4B6
TEL: (613) 591-2580 FAX: (613) 591-1495
www.fmw.on.ca

JOB No. V21800
E 345850, N 5018434
REFERENCE No. 133 – 2 – HUNTLEY
S:\JOBS\V21800\DWGS 2015-06-11
tp218v.dwg (KB)

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HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX B
MECP WELL RECORDS

McINTOSH PERRY

Ontario Ministry of the Environment

Well Tag Number (Place tag in this space or write number below): A 055265

A055265

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

[redacted]

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
Ottawa - Carleton	West Carleton	8	2

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
#106 Reis Road	Carp	Plan 4M-745 Block 1 Part 4, 5, 6, 7

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation
	83	18	422867	5017099	Magellan	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
	Grey Sand			0	8.84
	Grey Limestone			8.84	73.15

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)
0	73.15	15.88

Water Record

Water found at ___ Metres	Kind of Water
69.19 m	☐ Fresh ☒ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other: NOT TESTED
___ m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
___ m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☐ Clear and sediment free ☐ Other, specify: CLOUDY NOT TESTED

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam (centimetres)	Material	Wall thickness (centimetres)	Depth From	Depth To (Metres)
Casing				
15.88	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0	.48	10.67
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		10.06	73.15

Test of Well Yield

Pumping test method: Sub Pump

Pump intake set at - (metres): 70.76

Pumping rate (litres/min): 45.50

Duration of pumping: ___ hrs + 0 min

Final water level end of pumping: 20.19 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 70.76 metres

Recommended pump rate (litres/min): 45.50

If flowing give rate - (litres/min):

If pumping discontinued, give reason:

Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level	2.90		20.19
1	4.72	1	16.86
2	6.09	2	15.55
3	7.20	3	14.60
4	8.14	4	13.72
5	8.94	5	13.00
10	12.11	10	10.39
15	14.30	15	8.63
20	15.92	20	7.36
25	17.18	25	6.43
30	18.11	30	5.67
40	19.22	40	4.71
50	19.86	50	4.09
60	20.19	60	3.67

Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
10.06	7.01	Neat Cement Slurry	.1816
7.01	0	Bentonite Slurry	.245

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

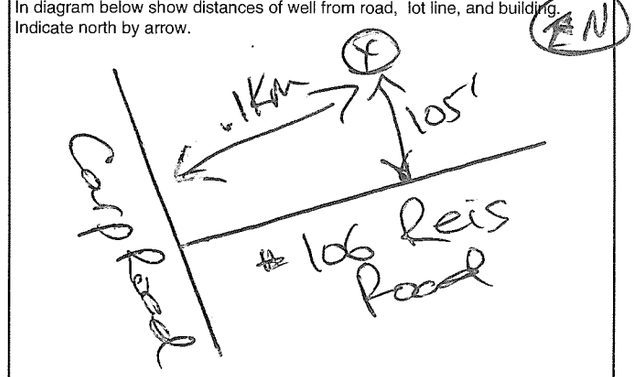
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No.	Date Well Completed (YYYY MM DD)
Z 65135	2007 07 27
Was the well owner's information package delivered? ☒ Yes ☐ No	**Date Delivered (YYYY MM DD)** 2007 07 31

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
AIR ROCK DRILLING LTD	1119
Business Address (street name, number, city etc.)	
RR1 RICHMOND ON K0A 2Z0	
Name of Well Technician (last name, first name)	Well Technician's Licence No.
PURCELL SHANNON	7012
Signature of Technician/Contractor	Date Submitted (YYYY MM DD)
X	2007 07 08

Ministry Use Only

Data Source	Contractor
	1119
Date Received (YYYY MM DD)	**Date of Inspection (YYYY MM DD)**
SEP 17 2007	
Remarks	**Well Record Number**

0506E (08/2006)

Ministry's Copy

Cette formule est disponible en français

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 1525420 MUNICIP 15005 CON. CON 02

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC	LOT
Ottawa Carleton	West Carleton Huntley	2	8

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Gracey Holdings Ltd.	P.O. Box 383 Stittsville, Ontario K2S 1A5	DAY 30 MO 05 YR 91

21 UTM ZONE | EASTING | NORTHING | RC. | ELEVATION | RC | BASIN CODE | II | III | IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Sandy Clay	Boulders	Dry	0	8
Gray	Hardpan	Boulders	Packed	8	28
Gray	Limestone		Medium Soft	28	298

31

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41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
289	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	30
6 1/8	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		30	298
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
Grouted		Cement (5)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	2 GPM	1 HOURS ___ MINS

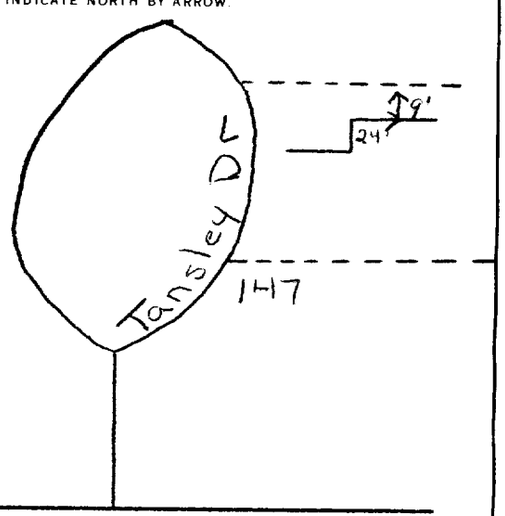
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☒ PUMPING 2 ☐ RECOVERY) 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
25 FEET	200 FEET	200 FEET	200 FEET	200 FEET	200 FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	200 FEET	1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☒ DEEP	250 FEET	2 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



O.C. #5

DRILLERS REMARKS 100071

FINAL STATUS OF WELL	WATER USE	METHOD OF CONSTRUCTION
1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING	1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED	1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☒ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Capital Water Supply Ltd
WELL CONTRACTOR'S LICENCE NUMBER: 1558
ADDRESS: Box 490 Stittsville, Ontario K2S 1A6
NAME OF WELL TECHNICIAN: S. Miller
WELL TECHNICIAN'S LICENCE NUMBER: T0097
SIGNATURE OF TECHNICIAN/CONTRACTOR: [signature]
SUBMISSION DATE: DAY 31 MO 5 YR 91

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 1558 | DATE RECEIVED JUN 18 1991
DATE OF INSPECTION | INSPECTOR
REMARKS

CSS.68

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (If any): A117486

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	
	1091287 ONTARIO INC.		[ ] Well Constructed by Well Owner

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
165 ENTERPRISE AVE	NEPEAN	ON	K2G 0W6	(613) 225-1221

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
106 TANSLEY DR.	HUNTLEY (WEST CARLETON)	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA/CARLETON	CARP	Ontario	K0A 1L0.

UTM Coordinates NAD 83	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	18	423137	5017407.	PARTS 55+56 PLAN 4R-7321	RES SUBDIVISION.

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
GREY	SANDY CLAY			0.00	1.22
BROWN	BROWN SAND			1.22	2.75
GREY	SILT CLAY			2.75	4.58
GREY	SAND & GRAVEL			4.58	12.20
GREY	TILL		DENSE	12.20	16.46
GREY	LIMESTONE	SHALE	BROKEN @ 20.7/m 24.1/m.	16.46	25.31 (83')

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0.00	17.38	Bentonite grout/ Seal.	0.40

Method of Construction

[ ] Cable Tool [ ] Diamond
[X] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, *specify*

Well Use

[ ] Public [X] Commercial [ ] Not used
[ ] Domestic [X] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [ ] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[ ] Industrial
[ ] Other, *specify*

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
15.88	Steel A589	0.48	0.46	17.38

Construction Record - Screen

N/A.

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Status of Well

[X] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[ ] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, *specify*
[ ] Other, *specify*

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water: Fresh / Untested / Other, specify	
20.7		SWM	120 PPM
24.1		SWM	120 PPM.

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
17.38	25.31	15.24
(57'-83')		(6")

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
STANDEN DRILLING INC	4875

Business Address (Street Number/Name)	Municipality
BOX 29, 157 FALLOWFIELD DR.	FITZROY HARBOUR

Province	Postal Code	Business E-mail Address
ON	K0A 2H0	standendrilling@bell.net.

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
(613) 624-5262	STANDEN, PETER

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0086		2012/05/25

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason: N/A.

Pump intake set at (m/ft): (40')

Pumping rate (l/min / GPM): 45 l/m (10 gpm)

Duration of pumping: 6 hrs + 0 min

Final water level end of pumping (m/ft): 1.31m (4.3')

If flowing give rate (l/min / GPM): N/A.

Recommended pump depth (m/ft): 9.2m (30')

Recommended pump rate (l/min / GPM): 45 l/m (10 gpm)

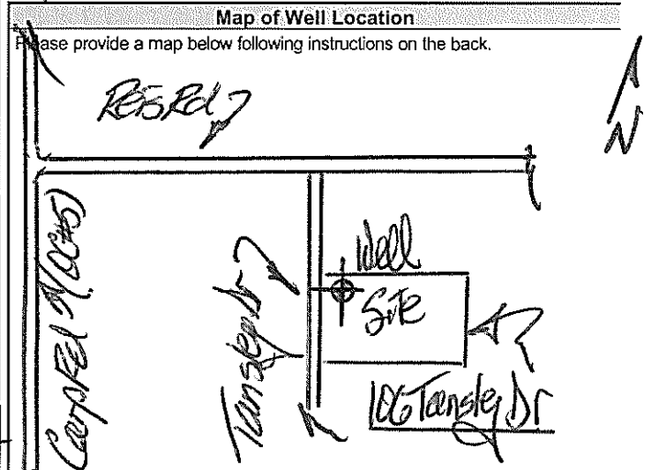
Well production (l/min / GPM): 300 l/m (66 gpm).

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	0.83		
1	1.11	1	1.03
2	1.14	2	0.99
3	1.16	3	0.97
4	1.18	4	0.95
5	1.19	5	0.94
10	1.22	10	0.91
15	1.24	15	0.89
20	1.25	20	0.88
25	1.26	25	0.87
30	1.27	30	0.87
40	1.275	40	0.86
50	1.28	50	0.86
60	1.285	60	0.86

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2012/04/27	2012/04/27

Ministry Use Only

Audit No. Z149063

MAY 29 2012

Received

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Ontario — Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11 — 1533699 — Municipality 15005 — Con. CON — 02

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa Carleton	West Carleton - Huntley	2	8

[redacted]

Address: 157 Abbeyhill Dr. Kanata, Ontario K2L 2E9

Date completed: 17 day 03 month 03 year

21 — UTM — Northing — RC — Elevation — RC — Basin Code — ii — iii — iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Soil	Sand & Gravel		0	13
Gray	Limestone			13	48

31

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WATER RECORD

Water found at - feet	Kind of water
23-40 NOT TESTED	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/4	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	+ 1.5	21
6	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		21	48
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
21	0	Grouted - Cement (3)
		Hole Plug (2)

PUMPING TEST

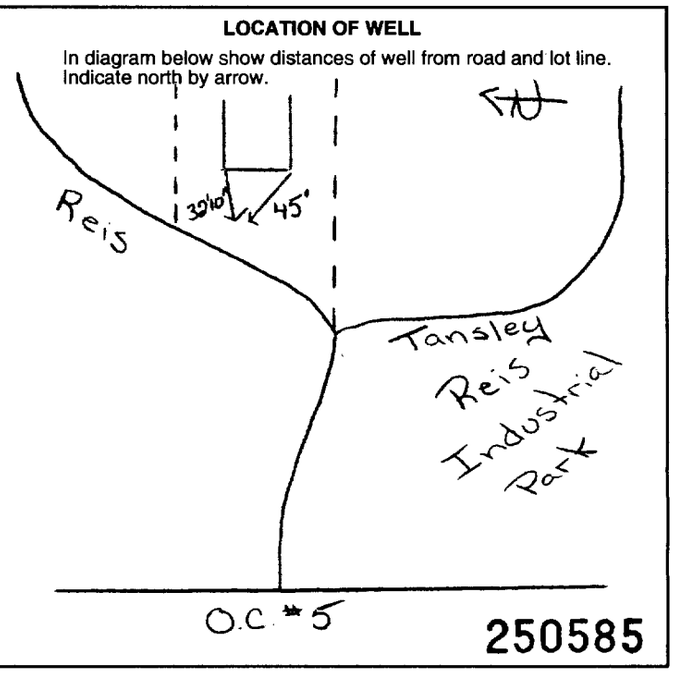
Pumping test method	Pumping rate	Duration of pumping
1 ☒ Pump 2 ☐ Bailer	25 GPM	1 Hours ... Mins

Static level	Water level end of pumping	Water levels during (1 ☒ Pumping 2 ☐ Recovery) 15 minutes	30 minutes	45 minutes	60 minutes
11'3" feet	25 feet	45 feet	45 feet	30 feet	25 feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☐ Clear ☒ Cloudy
Recommended pump type: ☐ Shallow ☒ Deep	Recommended pump setting: 30 feet	Recommended pump rate: 5 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



250585

FINAL STATUS OF WELL

1 ☒ Water supply
2 ☐ Observation well
3 ☐ Test hole
4 ☐ Recharge well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Abandoned (Other)
8 ☐ Dewatering
9 ☐ Unfinished
10 ☐ Replacement well

WATER USE

1 ☒ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not use
10 ☐ Other

METHOD OF CONSTRUCTION

1 ☐ Cable tool
2 ☐ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☒ Rotary (air)
5 ☒ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving
10 ☐ Digging
11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address: P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician: S. Miller	Well Technician's Licence No.: T0097
Signature of Technician/Contractor	Submission date: day 20 mo 03 yr 03

MINISTRY USE ONLY

Data source	Contractor	Date received
	1558	MAY 07 2003
Date of inspection	Inspector	
Remarks		CSS.ES3

2 - MINISTRY OF THE ENVIRONMENT COPY

0506 (07/00) Front Form 9

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. **A 090099**

Well Record

Regulation 903 Ontario Water Resources Act

[redacted]

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
138 TANSLEY DRIVE	HUNTLEY	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA.	CARP	Ontario	K0A 1L0

UTM Coordinates NAD 83	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	18	423302	5017349	PART BLOCK 10, PLAN 4M-745	

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
BROWN	SANDY CLAY	SILT.		0.00	1.22
GREY	SILTY SAND.			1.22	6.10
GREY	TILL	SAND, GRAVEL BOULDERS.		6.10	7.32
GREY	LIMESTONE	SHALE		7.32	87.54

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0.00	9.07	Cement grout.	0.96

Results of Well Yield Testing

After test of well yield, water was: [X] Clear and sand free [ ] Other, specify

If pumping discontinued, give reason: N/A.

Pump intake set at (m/ft): 52.05m (170')

Pumping rate (l/min / GPM): 23lpm (5gpm)

Duration of pumping: 1 hrs + 0 min +6hr

Final water level end of pumping (m/ft): 20.85 (68.3)

If flowing give rate (l/min / GPM): N/A.

Recommended pump depth (m/ft): 61m (200')

Recommended pump rate (l/min / GPM): 23lpm (5gpm)

Well production (l/min / GPM): " "

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	0.65		
1	1.80	1	19.83
2	2.68	2	18.85
3	3.47	3	18.18
4	4.15	4	17.38
5	7.45	5	16.60
10	8.44	10	13.26
15	9.43	15	10.50
20	11.49	20	8.15
25	13.22	25	6.30
30	14.48	30	4.78
40	16.95	40	2.66
50	19.09	50	1.55
60	20.85	60	0.96

Method of Construction

[ ] Cable Tool [ ] Diamond [X] Rotary (Conventional) [ ] Jetting [ ] Rotary (Reverse) [ ] Driving [ ] Boring [ ] Digging [X] Air percussion [ ] Other, specify

Well Use

[ ] Public [X] Commercial [ ] Not used [ ] Domestic [ ] Municipal [ ] Dewatering [ ] Livestock [ ] Test Hole [ ] Monitoring [ ] Irrigation [ ] Cooling & Air Conditioning [ ] Industrial [ ] Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
15.88	Steel A589	0.48 + 0.46		9.07.

Status of Well

[X] Water Supply [ ] Replacement Well [ ] Test Hole [ ] Recharge Well [ ] Dewatering Well [ ] Observation and/or Monitoring Hole [ ] Alteration (Construction) [ ] Abandoned, Insufficient Supply [ ] Abandoned, Poor Water Quality [ ] Abandoned, other, specify [ ] Other, specify

Construction Record - Screen N/A.

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Water Details

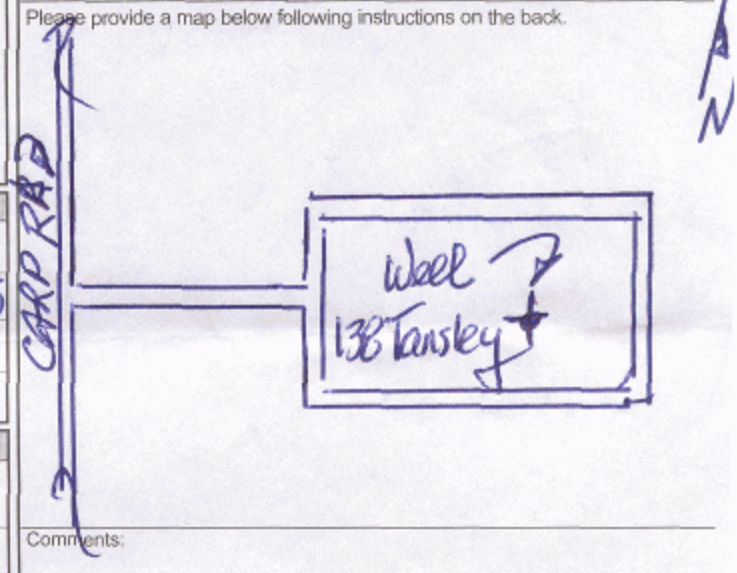
Water found at Depth (m/ft)	Kind of Water	
87.8	[ ] Fresh [ ] Untested [ ] Gas [ ] Other, specify	
	[ ] Fresh [ ] Untested [ ] Gas [ ] Other, specify	
	[ ] Fresh [ ] Untested [ ] Gas [ ] Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
7.32	87.54	15.55

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
STANTON DRILLING INC	4875

Business Address (Street Number/Name)	Municipality
BOX 219, 157 FIVE ARCHES DR	PAKENHAM

Province	Postal Code	Business E-mail Address
ON	K0A 2X0	stantondrilling@bell.net

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
(613) 624-5622	STANTON, PETER

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0086		2010/06/03

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2010/07/30	2010/07/30

Ministry Use Only

Audit No. Z103676

Received JUN 08 2010

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Ontario Ministry of the Environment

Well Tag	A 036014 (or below)
	A036014

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

OTTAWA-CARLETON | HUNTLEY | 8 | 2

RR#/Street Number/Name: #132 REIS ROAD | City/Town/Village: CARP | Site/Compartment/Block/Tract etc.:

GPS Reading: NAD 83 | Zone: 18 | Easting: 423064 | Northing: 5017339 | Unit Make/Model: MAGELLAN | Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
	SAND + GRAVEL			0	1.22
	GREY LIMESTONE			1.22	36.57
	GREY LIMESTONE + SAND STONE MIXED			36.57	45.72

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	45.72	15.24

Water Record

Water found at - Metres	Kind of Water
43.89 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other: NOT TESTED
___ m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
___ m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☐ Clear and sediment free ☐ Other, specify CLOUDY NOT TESTED

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
15.88	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.480	0	7.31
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		6.71	45.72

Test of Well Yield

Pumping test method: SUBPUMP

Pump intake set at (metres): 36.57

Pumping rate - (litres/min): 91

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping: 29.94 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 36.57 metres

Recommended pump rate (litres/min): 91

If flowing give rate - (litres/min): —

If pumping discontinued, give reason: —

	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level		1.59		29.94
	1	4.23	1	26.44
	2	5.66	2	25.07
	3	7.38	3	23.14
	4	8.89	4	22.25
	5	10.02	5	21.68
	10	14.59	10	17.70
	15	17.82	15	14.80
	20	20.32	20	12.56
	25	22.32	25	11.63
	30	24.30	30	10.65
	40	26.87	40	8.83
	50	27.91	50	7.09
	60	29.94	60	5.27

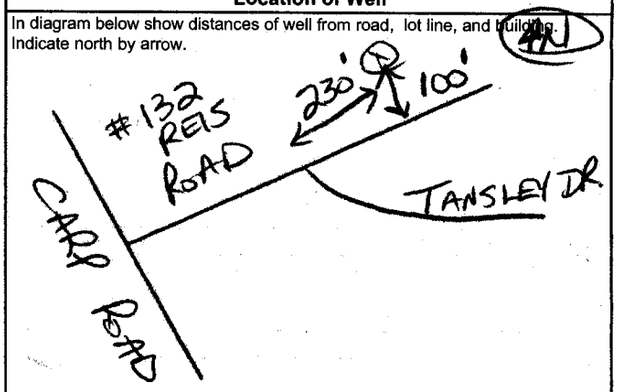
Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.71	0	NEAT CEMENT SLURRY	.227

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Audit No. Z 30843

Date Well Completed: 2005 10 27

Was the well owner's information package delivered? ☒ Yes ☐ No

Date Delivered: 2005 11 30

Well Contractor/Technician Information

Name of Well Contractor: AIR ROCK DRILLING CO LTD | Well Contractor's Licence No.: 1119

Business Address (street name, number, city etc.): RR#1 RICHMOND ONT K0A 2Z0

Name of Well Technician (last name, first name): PURCELL SHANNON | Well Technician's Licence No.: T2122

Signature of Technician/Contractor: X [signature] | Date Submitted: 2005 12 14

Ministry Use Only

Data Source	Contractor: 1119
Date Received: DEC 22 2005	Date of Inspection YYYY MM DD
Remarks	Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☒ Well Owner's Copy ☐ *Cette formule est disponible en frar*

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 1526582 — MUNICIP. 15005 — CON. CON — 02

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC	LOT
Ottawa Carleton	West Carleton - Huntley	2	8

[redacted] 01 Zephyr Ave. Ottawa Ontario K2B 5Z7

DATE COMPLETED: DAY 14 MO 9 YR 92

RC — ELEVATION — RC — BASIN CODE — II — III — IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Sandy Clay	Stones		0	5
Gray	Sand	Boulders		5	16
Gray	Limestone			16	250

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
49	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
243	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
NOT TESTED	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	21
6	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		21	250
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE — DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	5 GPM	1 HOURS 30 MINS

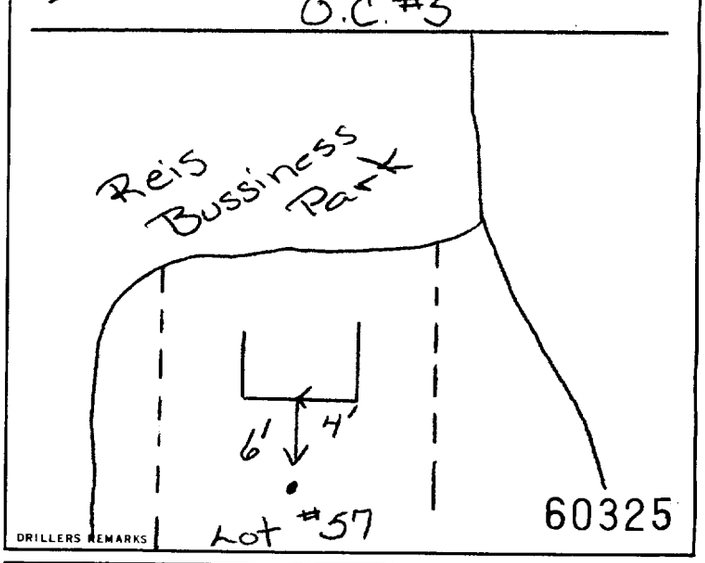
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☒ RECOVERY) 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
6 FEET	200 FEET	135 FEET	68 FEET	25 FEET	11 FEET

IF FLOWING, GIVE RATE: GPM — PUMP INTAKE SET AT: FEET — WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 150 FEET — RECOMMENDED PUMPING RATE: 5 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS: 60325

FINAL STATUS OF WELL	1 ☐ WATER SUPPLY 2 ☒ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING
WATER USE	1 ☐ DOMESTIC 2 ☒ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED
METHOD OF CONSTRUCTION	1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☒ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Capital Water Supply Ltd. — WELL CONTRACTOR'S LICENCE NUMBER: 1558

ADDRESS: Box 490 Stittsville, Ontario K2S 1A6

NAME OF WELL TECHNICIAN: S. Miller — WELL TECHNICIAN'S LICENCE NUMBER: T0097

SIGNATURE OF TECHNICIAN/CONTRACTOR — SUBMISSION DATE: DAY 16 MO 9 YR 92

OFFICE USE ONLY

DATA SOURCE — CONTRACTOR 1558 — DATE RECEIVED OCT 22 1992

DATE OF INSPECTION — INSPECTOR

REMARKS: CSS. GS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

3165d

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

(11) 1517694 MUNICIP. 15005 CON. CON 02

COUNTY OR DISTRICT: Ont | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: [redacted] | CON. BLOCK, TRACT, SURVEY, ETC.: Con 2, II | LOT: 008

[redacted] RR#2, Cayo. K0A 1L0 | DATE COMPLETED: DAY 19 MO 10 YR 81

(21) 16799 RC 4 ELEVATION 0380 RC 4 BASIN CODE 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
grey	clay			0	3
grey	hardpan	gravel		3	21
grey	gravel			21	25

(31) 0003205 0021214 0025211

(32)

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0025 (10-13)	1 ☑ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (14)
(15-18)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (19)
(20-23)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (24)
(25-28)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (29)
(30-33)	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL (34)

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
(10-11) 6 ~~05~~ 06	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE (12)	-188	0	0022 (13-16)
(17-18)	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE (19)			(20-23)
(24-25)	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE (26)			(27-30)

SCREEN

SIZE(S) OF OPENING (SLOT NO.) (31-33)	DIAMETER (34-38) INCHES	LENGTH (39-40) FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN (41-44) FEET	(30)

(61) PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
(10-13)	(14-17)	
(18-21)	(22-25)	
(26-29)	(30-33)	(80)

(71) PUMPING TEST

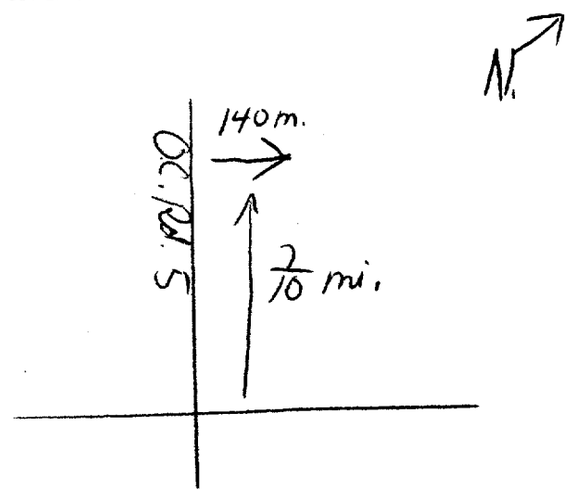
PUMPING TEST METHOD (10)	PUMPING RATE (11-14)	DURATION OF PUMPING (15-16) HOURS (17-18) MINS
1 ☑ PUMP 2 ☐ BAILER	0030 GPM	01 00

STATIC LEVEL (19-21)	WATER LEVEL END OF PUMPING (22-24)	WATER LEVELS DURING (25) 1 ☑ PUMPING 2 ☐ RECOVERY	15 MINUTES (26-28)	30 MINUTES (29-31)	45 MINUTES (32-34)	60 MINUTES (35-37)
008 FEET	015 FEET		015 FEET	015 FEET	015 FEET	015 FEET

IF FLOWING, GIVE RATE (38-41) GPM	PUMP INTAKE SET AT FEET	WATER AT END OF TEST (42) 1 ☐ CLEAR 2 ☑ CLOUDY
RECOMMENDED PUMP TYPE (50-53) ☑ SHALLOW ☐ DEEP	RECOMMENDED PUMP SETTING (43-45) 015 FEET	RECOMMENDED PUMPING RATE (46-49) 0010 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW



DRILLERS REMARKS

FINAL STATUS OF WELL (54): 1 ☑ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED — 1

WATER USE (55-56): 1 ☑ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED — 01

METHOD OF DRILLING (57): 1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☑ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING — 5

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Main Well Drilling | LICENCE NUMBER: 3644
ADDRESS: Box 326, Richmond Ont.
NAME OF DRILLER OR BORER: Henry Maris | LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: | SUBMISSION DATE: DAY 20 MO 10 YR 81

OFFICE USE ONLY

DATA SOURCE (58): 1 | CONTRACTOR (59-62): 3644 | DATE RECEIVED (63-68): 120182 (80)
DATE OF INSPECTION | INSPECTOR
REMARKS: CSS. ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

Ontario Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11 | 1532401 | Municipality 15005 | Con. CON 02

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa Carleton	West Carleton Huntley	2	8

[redacted]

Address: 164 Robertson Rd., Nepean ON. K2H 121

Date completed: 12 (day) 10 (month) 01 (year)

21 | UTM | Northing | RC | Elevation | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	sand			0	5
Grey	sand gravel and boulders			5	18
Grey	gravel	broken rock		18	23'6"
Grey	Limestone			23'6"	50
Note casing was left 4 ft. above ground level at time of drilling.					

31

32

41 WATER RECORD

Water found at - feet	Kind of water
25	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
45	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas — NOT TESTED
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	25
6	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		25	50
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

61 PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
25	0	Grouted Cement(5)

71 PUMPING TEST

Pumping test method: 1 ☒ Pump 2 ☐ Bailer

Pumping rate: 15 GPM

Duration of pumping: 1 Hours ___ Mins

Static level	Water level end of pumping	Water levels during: 1 ☒ Pumping 2 ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
4 feet	25 feet	48 feet	48 feet	25 feet	25 feet

If flowing give rate: ___ GPM

Pump intake set at: ___ feet

Water at end of test: ☐ Clear ☒ Cloudy

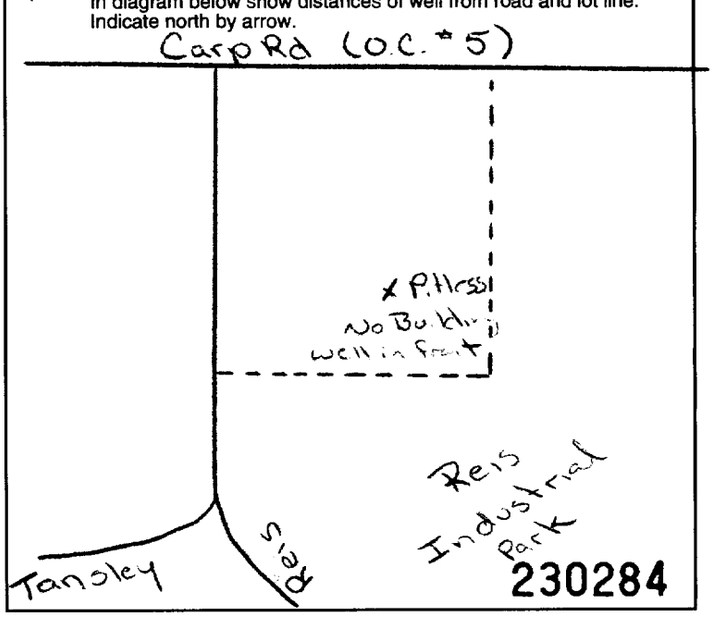
Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump setting: 30 feet

Recommended pump rate: 5 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



FINAL STATUS OF WELL

1 ☒ Water supply
2 ☐ Observation well
3 ☐ Test hole
4 ☐ Recharge well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Abandoned (Other)
8 ☐ Dewatering
9 ☐ Unfinished
10 ☐ Replacement well

WATER USE

1 ☒ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not use
10 ☐ Other

METHOD OF CONSTRUCTION

1 ☐ Cable tool
2 ☐ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☐ Rotary (air)
5 ☒ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving
10 ☐ Digging
11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address: Box 490, Stittsville, ON. K2S 1A6	
Name of Well Technician: S. Miller	Well Technician's Licence No.: T0097
Signature of Technician/Contractor	Submission date: day 16 mo 10 yr 01

MINISTRY USE ONLY

Data source	Contractor	Date received
	1558	NOV 27 2001
Date of inspection	Inspector	
Remarks		

CSS.ESI

2 - MINISTRY OF THE ENVIRONMENT COPY

0506 (07/00) Front Form 9

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

A 095914

Well (Tag Number Below): A095914

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
#124 Reis Road	West Carleton	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423039	5017289	Plan 4M-745 Block 1	4R21390 Part 3

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
	Sand, Clay & Gravel			0'	20'
	Grey Limestone			20'	101'

Keep Pump Above 80 FT - Broken Rock

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m/ft³)
26'	0'	Neat Cement Slurry	12.48

Results of Well Yield Testing

After test of well yield, water was: ☒ Clear and sand free ☐ Other, specify NOT TESTED

If pumping discontinued, give reason: X

Pump intake set at (m/ft): 80'

Pumping rate (l/min / GPM): 20

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 9'5"

If flowing give rate (l/min / GPM): X

Recommended pump depth (m/ft): 80'

Recommended pump rate (l/min / GPM): 20

Well production (l/min / GPM): 20

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	8'		9'5"
1	8'5"	1	9'1"
2	8'5"	2	8'5"
3	8'6"	3	8'1"
4	8'7"	4	8'
5	8'7"	5	
10	8'9"	10	
15	9'1"	15	
20	9'2"	20	
25	9'2"	25	
30	9'3"	30	
40	9'3"	40	
50	9'4"	50	
60	9'5"	60	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6"	Steel	.188"	+2'	26'
6"	Open Hole		26'	101'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

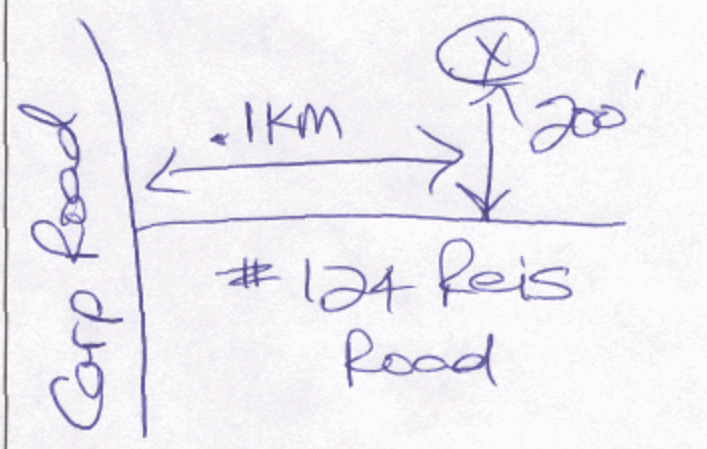
Water found at Depth (m/ft)	Kind of Water	
38'	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
82'	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
88'	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	101'	6"

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
AIR ROCK DRILLING CO LTD	1119

Business Address (Street Number/Name)	Municipality
RR#1	RICHMOND

Province	Postal Code	Business E-mail Address
ONT	K0A2Z0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 838 2170	HOGAN DAN

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T3058	[signature]	20100621

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	20100513	20100512

Ministry Use Only

Audit No. Z108337

JUN 25 2010 Received

0506E (12/2007)

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Ontario — Ministry of the Environment

Well Tag No. A117443

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	
	BAIRD CONSTRUCTION MANAGEMENT LTD.		[ ] Well Constructed by Well Owner

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
151 TANSLEY DRIVE	CARP	ON	K0A 1L0	(613) 831-7044

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
2650 CARP ROAD.	HUNTLEY	7.	2

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA/CARLETON.	CARP	Ontario	K0A 1L0

UTM Coordinates NAD 83	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	18	423279	5016886.		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	TILL	SOILS.		0.00	2.75
GREY	GRAVEL/SAND	BOULDERS		2.75	4.58
GREY	LIMESTONE	SHALE		4.58	97.60

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0.00	6.41.	Holeplug grout/sealed.	0.26.

Results of Well Yield Testing

After test of well yield, water was: [X] Clear and sand free [ ] Other, specify

If pumping discontinued, give reason: N/A.

Pump intake set at (m/ft): 30m (100').

Pumping rate (l/min / GPM): 45lpm (10gpm).

Duration of pumping: 6 hrs + 0 min

Final water level end of pumping (m/ft): 12.94m

If flowing give rate (l/min / GPM): N/A.

Recommended pump depth (m/ft): 30m (100')

Recommended pump rate (l/min / GPM): 45lpm (10gpm)

Well production (l/min / GPM): >45lpm (>10gpm)

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	1.76		
1	3.64	1	9.54
2	4.95	2	8.61
3	5.96	3	7.94
4	6.81	4	7.46
5	7.50	5	6.98
10	9.68	10	5.57.
15	10.71	15	4.88
20	11.35	20	4.44
25	11.76	25	4.17.
30	12.07	30	3.96
40	12.48	40	3.65
50	12.76	50	3.45
60	12.96	60	3.29

Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, specify

Well Use

[ ] Public [X] Commercial [ ] Not used
[ ] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [ ] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[ ] Industrial
[ ] Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.88	Steel A589.	0.48 + .91	6.41	

Status of Well

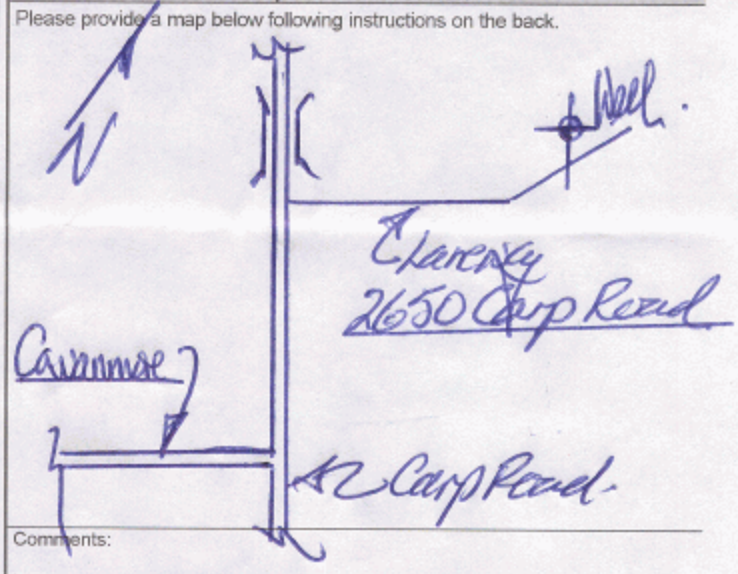
[X] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[ ] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, specify
[ ] Other, specify

Construction Record - Screen N/A.

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Water Details

Water found at Depth (m/ft)	Kind of Water	
94 (m/ft) [ ] Gas	[ ] Fresh [X] Untested [ ] Other, specify	
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify	
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
6.41.	97.6	15.24

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
STAWKEN DRILLING INC.	4875

Business Address (Street Number/Name)	Municipality
BOX 219, 157 FIVE ARCHES RD.	PAKENHAM.

Province	Postal Code	Business E-mail Address
ON	K0A 2K0	stawkendrilling@bell.net.

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
(613) 624-5622	STAWKEN, PETER.

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0086	[signature]	2011/06/01

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2011/06/01	2011/06/03

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Audit No. Z132972

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Well Tag Number (Place sticker and print number below)

A013760

A013760

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN 15005 CON CON 02 LOT 08

Well Owner's Information and Location of Well Information

[redacted]

County/District/Municipality	City/Town/Village	Site/Compartment/Block/Tract etc.	
Ottawa Carleton	West Carleton - Huntley	8	2

RR#/Street Number/Name: 152 Reis Road

City/Town/Village: Carp

Site/Compartment/Block/Tract etc.:

GPS Reading: NAD 83 Zone 18 Easting 42 31 38 Northing 50 17 43 4

Unit Make/Model: Carmin

Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
Brown	Sand	Stones		0	1.82
Gray	HArdpan			1.82	3.04
Gray	Sand & Gravel			3.04	4.87
Gray	Limestone	Brown Layers		4.87	45.11

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	6.40	22.75
6.40	45.11	15.39

Water Record

Water found at ___ Metres / Kind of Water

42.67 ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other: not tested

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
15.86	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0.48	+ 0.45	6.40
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
15.39	☒ Open hole		6.40	45.11

Test of Well Yield

Pumping test method: submersible

Pump intake set at - (metres): 30.48

Pumping rate - (litres/min): 36.4

Duration of pumping: 3 hrs + ___ min

Final water level end of pumping: 3.17 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 22.86 metres

Recommended pump rate: 36.4 (litres/min)

If flowing give rate - (litres/min)

If pumping discontinued, give reason.

Time min	Draw Down Water Level Metres	Time min	Recovery Water Level Metres
Static Level	1.95		
1	2.76	1	2.22
2	2.91	2	2.18
3	2.97	3	2.10
4	3.00	4	2.10
5	3.03	5	2.08
10	3.06	10	2.04
15	3.09	15	2.01
20	3.10	20	2.03
25	3.10	25	2.01
30	3.10	30	2.00
40	3.12	40	1.97
50	3.11	50	1.99
60	3.11	60	1.99

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.40	0	Grouted - Bentonite Slurry	0.22m3

Method of Construction

☐ Cable Tool ☒ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

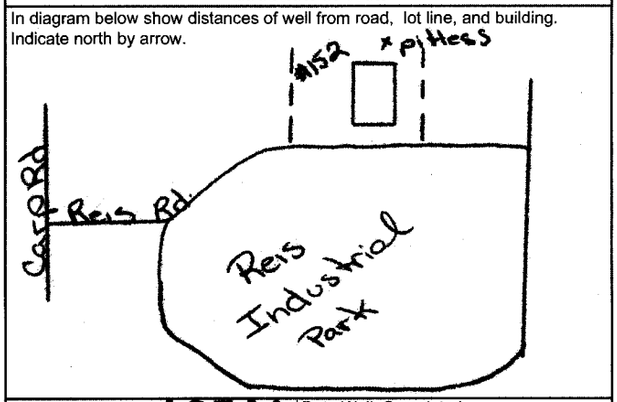
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 13741

Date Well Completed: YYYY 2004 MM 8 DD 24

Was the well owner's information package delivered? ☒ Yes ☐ No

Date Delivered: YYYY 2004 MM 8 DD 25

Well Contractor/Technician Information

Name of Well Contractor: Capital Water Supply Ltd.

Well Contractor's Licence No.: 1558

Business Address (street name, number, city etc.): P.O. Box 490 Stittsville,Ontario K2S 1A6

Name of Well Technician (last name, first name): Miller: Stephen

Well Technician's Licence No.: T0097

Signature of Technician/Contractor: X

Date Submitted: YYYY 2004 MM 8 DD 27

Ministry Use Only

Data Source

Contractor: 1558

Date Received YYYY MM DD: SEP 10 2004

Date of Inspection YYYY MM DD

Remarks

Well Record Number: 1534968

0506E (09/03)

Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

Cette formule est disponible en français

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. (Place Sticker Here or Print Below): **A 092633**

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of 3

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
155 REIS	OTTAWA		

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA CARELTON	OTTAWA	Ontario	K0A 1L0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423247	5017365		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	SAND	STONES CLAY		0	14½
BROWN	LIMESTONE	GREY LIMESTONE	LYRS SANDSTONE	14½	135
GREY	LIMESTONE	LYRS GREY SANDSTONE		135	280

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	23	BENTONITE SLURRY	.256

Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, specify CLEARING

If pumping discontinued, give reason: —

Pump intake set at (m/ft): 200

Pumping rate (l/min / GPM): 5

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 10.15

If flowing give rate (l/min / GPM): —

Recommended pump depth (m/ft): 80

Recommended pump rate (l/min / GPM): 8

Well production (l/min / GPM): 8+

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	1.8		
1	5.25	1	8.25
2	7.0	2	6.3
3	7.15	3	5.6
4	7.2	4	5.2
5	7.25	5	4.9
10	8.4	10	4.2
15	9.0	15	3.8
20	9.3	20	3.5
25	9.45	25	3.35
30	9.75	30	3.1
40	9.9	40	2.75
50	10.05	50	2.65
60	10.15	60	2.55

Method of Construction

☐ Cable Tool ☐ Diamond ☒ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☒ Air percussion ☐ Other, specify

Well Use

☐ Public ☒ Commercial ☐ Not used ☐ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6¼	STEEL	.188	0+2	23
6	OPEN HOLE		23	280

Status of Well

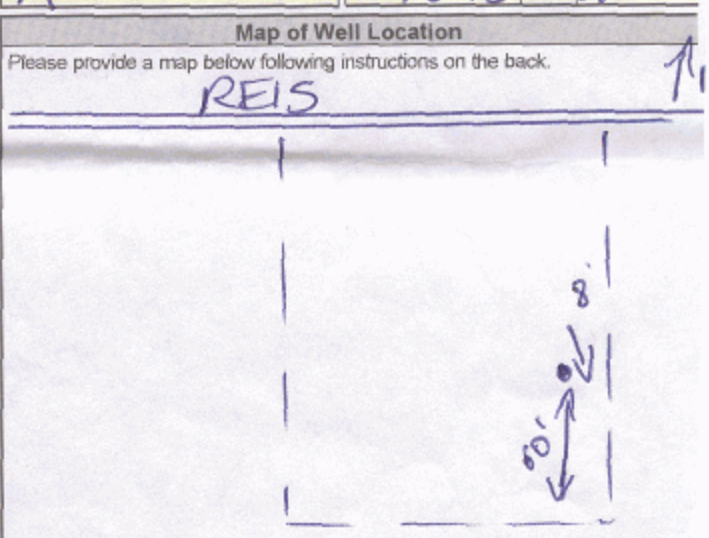
☒ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	
135	☐	☐ Fresh ☒ Untested	☐ Other, specify
268	☐	☐ Fresh ☒ Untested	☐ Other, specify
	☐	☐ Fresh ☐ Untested	☐ Other, specify

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	23	9¾
23	280	6

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
T. SAUNDERS DRILLING LTD	4879

Business Address (Street Number/Name)	Municipality
RR#1	BRAESIDE

Province	Postal Code	Business E-mail Address
ONT	K0A1G0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 623 5648	SAUNDERS TROY

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T517	Troy Saunders	2010 09 12

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2010 08 12	2010 08 12

Ministry Use Only

Audit No. Z120549

Received AUG 20 2010

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Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below)
A 006995
A006995

Well Record
Regulation 903 Ontario Water Resources Act

page ___ of ___

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- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

[redacted]

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
Ottawa Carleton	West Carleton - Huntley	8	2

RR#/Street Number/Name: 155 Tansley Dr.
City/Town/Village: Carp
Site/Compartment/Block/Tract etc.:

GPS Reading: NAD 83 | Zone 18 | Easting 423 43 4 | Northing 501 74 30
Unit Make/Model: Garmin
Mode of Operation: Undifferentiated [ ] Averaged [X] Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
Gray	Sandy Clay		Fill	0	.91
Gray			Fill	.91	8.38
Gray	Limestone	Shale		8.38	85.03

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	9.29	22.53
9.29	85.03	15.23
83.21	85.03	14.59

Water Record

Water found at ___ Metres	Kind of Water
16.76 m	[ ] Fresh [ ] Sulphur [ ] Gas [ ] Salty [ ] Minerals [ ] Other:
80.77 m	[ ] Fresh [ ] Sulphur [ ] Gas [ ] Salty [ ] Minerals [ ] Other: Not Tested
m	[ ] Fresh [ ] Sulphur [ ] Gas [ ] Salty [ ] Minerals [ ] Other:

After test of well yield, water was
[X] Clear and sediment free
[ ] Other, specify

Chlorinated [X] Yes [ ] No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
15.86	[X] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized	0.45	+ 0.45	9.29
	[ ] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized			
	[ ] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized			
Screen				
Outside diam	[ ] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized	Slot No.		
No Casing or Screen				
15.23	[X] Open hole		9.29	83.21
14.59			83.21	85.03

Test of Well Yield

Pumping test method: submersible

Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level	5.19		
1	7.05	1	9.49
2	7.39	2	8.83
3	7.62	3	8.25
4	7.88	4	7.98
5	8.08	5	7.73
10	8.86	10	6.83
15	9.34	15	6.26
20	9.74	20	5.91
25	10.06	25	5.82
30	10.23	30	5.72
40	10.46	40	5.64
50	10.46	50	5.62
60	10.46	60	5.60

Pump intake set at - (metres) 45.72
Pumping rate - (litres/min) 22.75
Duration of pumping 1 hrs + ___ min
Final water level end of pumping 10.46 metres
Recommended pump type. [ ] Shallow [X] Deep
Recommended pump depth. 45.72 metres
Recommended pump rate. 22.75 (litres/min)
If flowing give rate - (litres/min)
If pumping discontinued, give reason.

Plugging and Sealing Record
[X] Annular space [ ] Abandonment

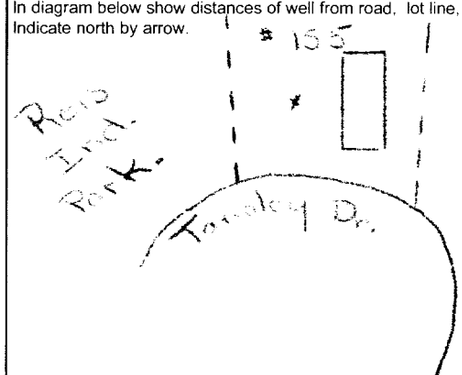
Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
9.29	0	Grouted - Cement	.18m3

Method of Construction
[ ] Cable Tool [X] Rotary (air) [ ] Diamond [ ] Digging
[ ] Rotary (conventional) [X] Air percussion [ ] Jetting [ ] Other
[ ] Rotary (reverse) [ ] Boring [ ] Driving

Water Use
[X] Domestic [ ] Industrial [ ] Public Supply [ ] Other
[ ] Stock [ ] Commercial [ ] Not used
[ ] Irrigation [ ] Municipal [ ] Cooling & air conditioning

Final Status of Well
[X] Water Supply [ ] Recharge well [ ] Unfinished [ ] Abandoned, (Other)
[ ] Observation well [ ] Abandoned, insufficient supply [ ] Dewatering
[ ] Test Hole [ ] Abandoned, poor quality [ ] Replacement well

Location of Well
In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 06995
Date Well Completed: YYYY 2004 MM 4 DD 21
Was the well owner's information package delivered? [X] Yes [ ] No
Date Delivered: YYYY 2004 MM 4 DD 30

Well Contractor/Technician Information
Name of Well Contractor: Capital Water Supply Ltd.
Well Contractor's Licence No.: 1558
Business Address (street name, number, city etc.): P.O. Box 490 Stittsville,ONtario K2S 1A6
Name of Well Technician (last name, first name): Stanton, Peter
Well Technician's Licence No.: T0086
Signature of Technician/Contractor: X
Date Submitted: YYYY 2004 MM 4 DD 30

Ministry Use Only
Data Source
Contractor: 1558
Date Received: JUN 24 2004
Date of Inspection: YYYY MM DD
Remarks: CSS.Dr
Well Record Number: 1534685

0506E (09/03) Contractor's Copy [ ] Ministry's Copy [ ] Well Owner's Copy [ ]

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Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below)

A 013663

A013663

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

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- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

Ottawa Carleton	West Carleton-Huntley	8	2

RR#/Street Number/Name: Tansley Court

City/Town/Village: Carp

Site/Compartment/Block/Tract etc.:

GPS Reading — NAD: 83 | Zone: 18 | Easting: 423416 | Northing: 5017450

Unit Make/Model: Garmin

Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
brown	soil	stones	loose	0	3.35
light brown sandy soil				3.35	6.09
gray	hardpan		packed	6.09	7.61
gray	limestone	dark layers		7.61	83.20

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	9.44	22.75
9.44	83.20	15.39

Water Record

Water found at ___ Metres	Kind of Water
11.58 m	☐ Fresh ☐ Sulphur ☐ Salty ☐ Minerals ☐ Other:
81.07 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
Not Tested m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
15.86	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0.48	+.60	9.44
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
15.39	☒ Open hole		9.44	83.20

Test of Well Yield

Pumping test method: submersible

Pump intake set at - (metres): 45.71

Pumping rate - (litres/min): 45.5

Duration of pumping: 2 hrs + ___ min

Final water level end of pumping: 6.70 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 45.71 metres

Recommended pump rate: 45.5 (litres/min)

If flowing give rate - (litres/min):

If pumping discontinued, give reason:

Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
Static Level	4.55		
1	5.23	1	5.54
2	5.45	2	5.34
3	5.58	3	5.31
4	5.66	4	5.27
5	5.74	5	5.23
10	5.92	10	5.08
15	6.02	15	4.99
20	6.16	20	4.90
25	6.15	25	4.81
30	6.18	30	4.83
40	6.21	40	4.78
50	6.23	50	4.74
60	6.25	60	4.71

Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
9.44	0	Grouted Bentonite Slurry	

Method of Construction

☐ Cable Tool ☒ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

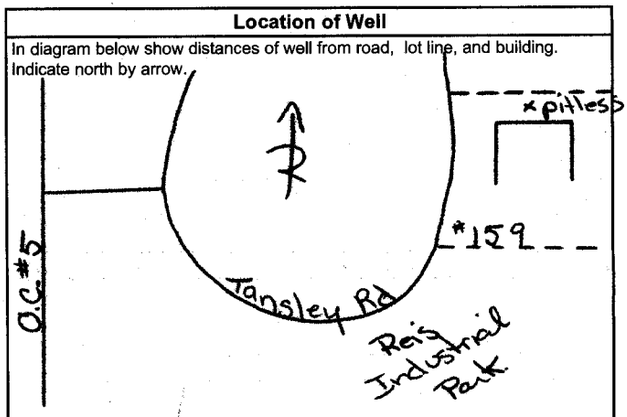
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 27087

Date Well Completed: YYYY 2005 MM 05 DD 02

Was the well owner's information package delivered? ☐ Yes ☐ No

Date Delivered: YYYY 2005 MM 05 DD 03

Well Contractor/Technician Information

Name of Well Contractor: Capital Water Supply Ltd.

Well Contractor's Licence No.: 1558

Business Address (street name, number, city etc.): Box 490 Stittsville, Ontario K2S 1A6

Name of Well Technician (last name, first name): Miller, Stephen

Well Technician's Licence No.: T0097

Signature of Technician/Contractor: X

Date Submitted: YYYY 2005 MM 05 DD 05

Ministry Use Only

Data Source:

Contractor: 1558

Date Received: JUN 16 2005

Date of Inspection: YYYY MM DD

Remarks:

Well Record Number:

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

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Ontario Ministry of the Environment

Well Tag Number (if any) A 043423

A043423

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

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- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

[redacted]

Address of Well Location (County/District/Municipality): Ottawa Carleton

Township: West Carleton | Lot: Part 6&7 | Concession: 2

RR#/Street Number/Name: #160 Reese Road | City/Town/Village: Carp | Site/Compartment/Block/Tract etc.: Plan 4M-745 P/L2

GPS Reading: NAD 83 | Zone: 18 | Easting: 423210 | Northing: 5017454 | Unit Make/Model: Magellan | Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
	Sand & Clay			0	4.88
	Grey Limestone			4.88	15.24

Hole Diameter

Depth From (Metres)	Depth To (Metres)	Diameter (Centimetres)
0	15.24	15.23

Water Record

Water found at Metres / Kind of Water

- 9.14 m ☐ Fresh ☒ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
- 12.50 m ☐ Fresh ☒ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☐ Clear and free of sediment ☐ Other, specify: NOT TESTED

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam (centimetres)	Material	Wall thickness (centimetres)	Depth From	Depth To (Metres)
Casing				
15.88	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.48	0	7.01
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		6.40	15.24

Test of Well Yield

Pumping test method: SubPump

Pump intake set at (metres): 12.19

Pumping rate (litres/min): 91

Duration of pumping: ___ hrs + 0 min

Final water level end of pumping: 2.43 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 12.19 metres

Recommended pump rate (litres/min): 91

If flowing give rate - (litres/min):

If pumping discontinued, give reason:

Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level	1.30		2.43
1	1.86	1	1.84
2	1.99	2	1.70
3	2.08	3	1.60
4	2.14	4	1.55
5	2.18	5	1.505
10	2.29	10	1.41
15	2.34	15	1.38
20	2.36	20	1.36
25	2.38	25	1.35
30	2.39	30	1.34
40	2.41	40	1.32
50	2.42	50	1.30
60	2.43	60	

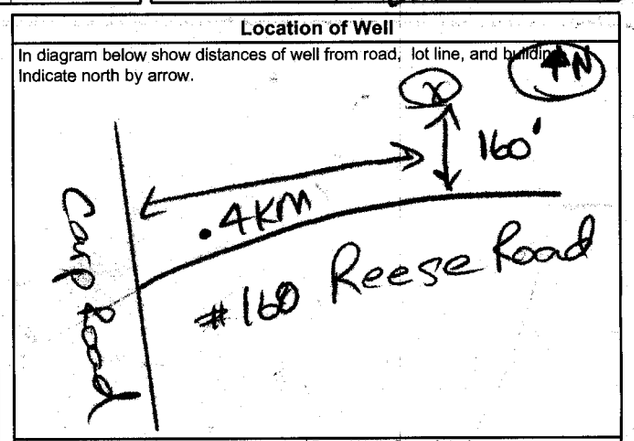
Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.40	0	Neat Cement Slurry	.227

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Audit No. Z 48617

Date Well Completed: 2006 07 26

Was the well owner's information package delivered? ☒ Yes ☐ No

Date Delivered: 2006 08 04

Well Contractor/Technician Information

Name of Well Contractor: AIR ROCK DRILLING LTD | Well Contractor's Licence No.: 1119

Business Address (street name, number, city etc.): RR#1 RICHMOND ONT K0A2Z0

Name of Well Technician (last name, first name): Desaulniers Ken | Well Technician's Licence No.: 74

Signature of Technician/Contractor: X [signature] | Date Submitted: 2006 08 08

Ministry Use Only

Data Source | Contractor: 1119

Date Received: SEP 07 2006 | Date of Inspection YYYY MM DD

Remarks | Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☒ Well Owner's Copy ☐

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Ontario Ministry of the Environment

Well Tag A 036038 (see below)

A036038

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

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- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

Ottawa Carleton | Huntley | 8 | 2

RR#/Street Number/Name: #164 Reis Road | City/Town/Village: Carp | Site/Compartment/Block/Tract etc.: No Plan # S/L 9

GPS Reading: NAD 83 | Zone 18 | Easting 423194 | Northing 5017468 | Unit Make/Model: Magellan | Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
	Clay			0	5.49
	Dark Grey Limestone			5.49	18.29

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	18.29	14.91

Water Record

Water found at Metres	Kind of Water
7.62 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other: NOT TESTED
16.76 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify NOT TESTED

Chlorinated? ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
15.88	☒ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	.48	0	7.01
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		6.40	18.29

Test of Well Yield

Pumping test method: SubPump

Pump intake set at (metres): 15.24

Pumping rate (litres/min): 91

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping: 2.52 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 15.24 metres

Recommended pump rate (litres/min): 91

If flowing give rate (litres/min):

If pumping discontinued, give reason: —

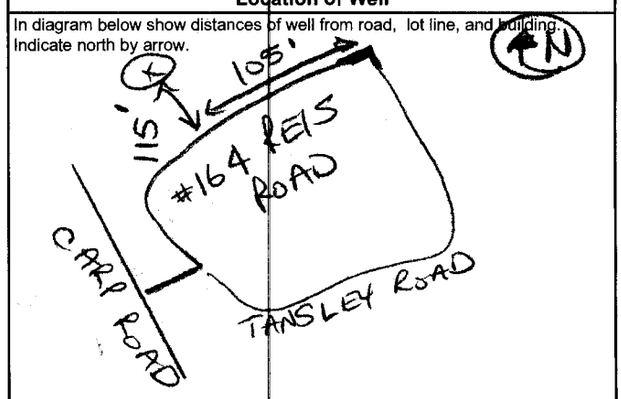
Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
Static Level	.87		2.52
1	1.70	1	1.58
2	1.94	2	1.38
3	2.08	3	1.27
4	2.17	4	1.20
5	2.24	5	1.14
10	2.38	10	.98
15	2.45	15	.92
20	2.49	20	.89
25	2.50	25	
30	2.50	30	
40	2.51	40	
50	2.51	50	
60	2.52	60	

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.40	0	Neat Cement Slurry	.227

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Audit No. Z 39978

Date Well Completed: 2006 04 24

Was the well owner's information package delivered? ☒ Yes ☐ No

Date Delivered: 2006 04 24

Well Contractor/Technician Information

Name of Well Contractor: AIR ROCK DRILLING CO LTD | Well Contractor's Licence No. 1119

Business Address (street name, number, city etc.): RR#1 RICHMOND ONT K0A2Z0

Name of Well Technician (last name, first name): HOGAN DAN | Well Technician's Licence No. T3058

Signature of Technician/Contractor: X [signature] | Date Submitted: 2006 04 27

Ministry Use Only

Data Source | Contractor: 1119

Date Received: MAY 09 2006 | Date of Inspection

Remarks | Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

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Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* **A102665**

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
171 REIS ROAD	HUNTLEY	8	#2

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA-CARLETON	OTTAWA (CARP)	Ontario	K0A1L0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423232	5017188	4M245 PT LOT 10 RP4R7521 PART 71-72	

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
BROWN	SAND		LOOSE	0	10
GREY	HARDPAN	STONES		10	14
GREY	LIMESTONE			14	60

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	20	GROUT TYPE #10	10 bag. sally

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, *specify* ____

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* ____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (mm/in)	Depth (m/ft) From	To
6¼	STEEL	.188	0	20

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Status of Well

☑ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify* ____
☐ Other, *specify* ____

Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, *specify* ____

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

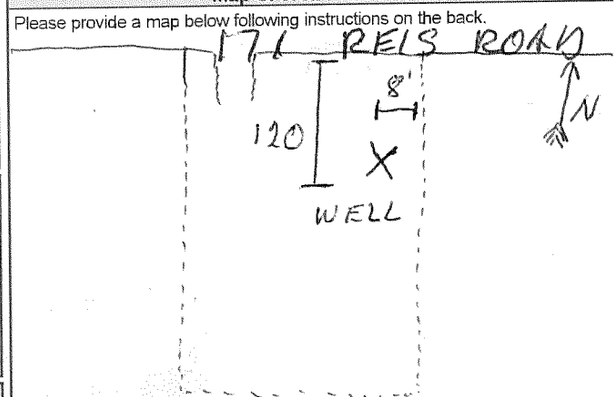
Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	8.4		20.6
1	11.4	1	15.5
2	13	2	13.3
3	14	3	12.3
4	14.6	4	11.7
5	15.6	5	11.4
10	18.2	10	10.4
15	19.2	15	9.7
20	19.9	20	9.4
25	20.2	25	9.1
30	20.4	30	9.1
40	20.5	40	9.
50	20.6	50	8.7
60	20.6	60	8.6

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Water Details

Water found at Depth	Kind of Water	
55 (m/ft)	☐ Fresh ☑ Untested	☐ Gas ☐ Other, *specify* ____
(m/ft)	☐ Fresh ☐ Untested	☐ Gas ☐ Other, *specify* ____
(m/ft)	☐ Fresh ☐ Untested	☐ Gas ☐ Other, *specify* ____

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	20	6¼
20	60	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor: PLUMBING VILLAGE

Well Contractor's Licence No.: 6574

Business Address (Street Number/Name): BOX 429 CARP ONT

Municipality: OTTAWA CARLETON

Province: ONT

Postal Code: K0A1L0

Business E-mail Address: —

Bus. Telephone No. *(inc. area code)*: 6138395550

Name of Well Technician (Last Name, First Name): SIMON SKUSE

Well Technician's Licence No.: 1310

Signature of Technician and/or Contractor: [signature]

Date Submitted: YYYY MM DD

Well owner's information package delivered: ☐ Yes ☐ No

Date Package Delivered: 2012 09 01

Date Work Completed: 2012 09 01

Ministry Use Only

Audit No. Z115821

Received SEP 27 2012

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Ministry's Copy

Ontario Ministry of the Environment

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker and/or Print Below) **A102654**

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
171 ANSLEY DRIVE	MARCH	14-15	3

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA CARLETON	CARP	Ontario	K0A 1L0

UTM Coordinates NAD 83	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	18	423325	5002273	04537-0017	

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	SAND		PACKED	0	6
GREY	HARDPAN	STONES		6	20
GREY	LIMESTONE		MED HARD	20	42

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	26	TYPE 10 CEMENT	10kg BAG

Results of Well Yield Testing

After test of well yield, water was: ☑ Clear and sand free ☐ Other, specify _____

If pumping discontinued, give reason: —

Pump intake set at (m/ft): 75

Pumping rate (l/min / GPM): 8

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 25.5

If flowing give rate (l/min / GPM): —

Recommended pump depth (m/ft): 95

Recommended pump rate (l/min / GPM): 6

Well production (l/min / GPM): 8

Disinfected? ☐ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	13.4		20
1	16.4	1	20
2	18	2	18
3	19	3	17.1
4	19.6	4	16.7
5	20.6	5	16.4
10	23.2	10	15.7
15	24.2	15	15.2
20	24.9	20	14.9
25	25.2	25	14.7
30	25.2	30	14.1
40	25.5	40	14.1
50	"	50	13.7
60	"	60	13.7

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☑ Air percussion
☐ Other, specify _____

Well Use

☐ Public ☑ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify _____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6¼	STEEL	188	0	26

Status of Well

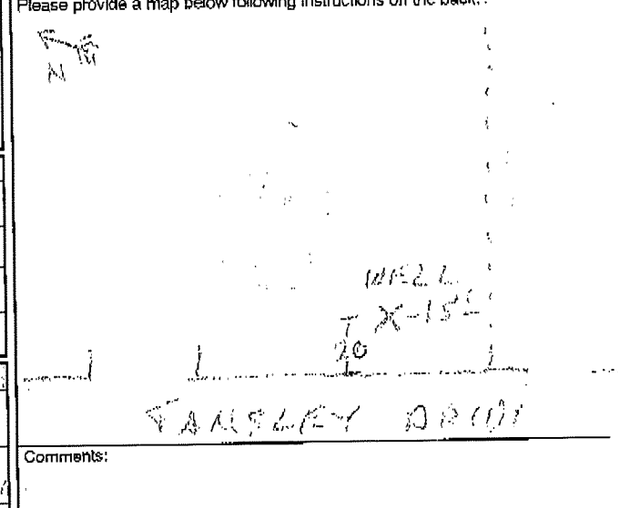
☑ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify _____
☐ Other, specify _____

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Water Details

Water found at Depth	Kind of Water	
90 (m/ft) ☐ Gas	☑ Fresh ☐ Untested ☐ Other, specify _____	
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify _____	
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify _____	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	26	6¼
26	98	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor: PLUMBING VILLAGE

Well Contractor's Licence No.: 6517

Business Address (Street Number/Name): BOX 429 CARP ONT

Municipality: TOWN CARLETON

Province: ONT

Postal Code: K0A 1L0

Business E-mail Address:

Bus. Telephone No. (inc. area code): 613 839 5510

Name of Well Technician (Last Name, First Name): SIMON SILVE

Well Technician's Licence No.: T 3 1 0 1

Signature of Technician and/or Contractor:

Date Submitted: Y Y Y Y M M D D

Well owner's information package delivered ☐ Yes ☐ No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: Y Y Y Y M M D D

Ministry Use Only

Audit No. Z115818

Received

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1525480 | MUNICIP 15005 | CON. CON 02

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC	LOT
[redacted]	st Carleton	2	8

DATE COMPLETED: DAY 18 MO 06 YR 91

[redacted] . Box 83 Manotick,Ontario K0A 2N0

ING | RC | ELEVATION | RC | BASIN CODE | II | III | IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Clay	Stones	Packed	0	6
Gray	Gravel	Sand	Wet	6	15
Gray	Limestone		Medium Soft	15	223

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
219	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	21
6 1/8	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		21	223
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
Grouted		Cement (4)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER

PUMPING RATE: 3 GPM

DURATION OF PUMPING: 1 HOURS ___ MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☒ PUMPING 2 ☐ RECOVERY) 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
30 FEET	175 FEET	175 FEET	175 FEET	175 FEET	175 FEET

IF FLOWING, GIVE RATE: ___ GPM

PUMP INTAKE SET AT: 175 FEET

WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

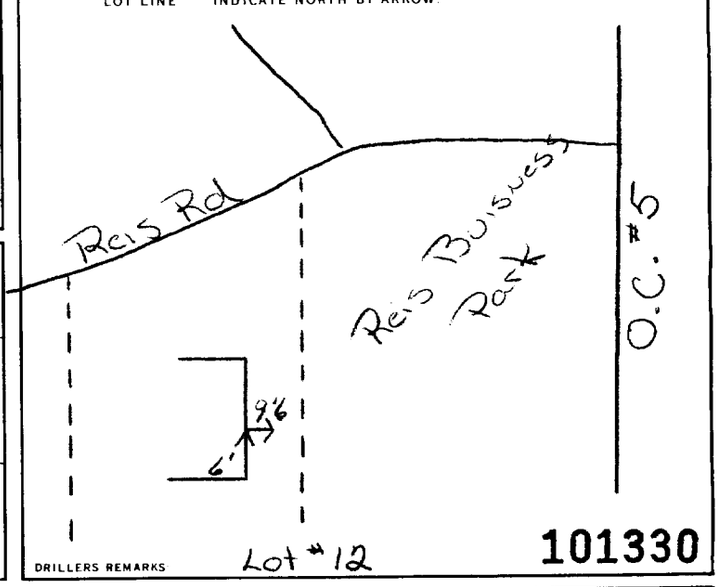
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP

RECOMMENDED PUMP SETTING: 200 FEET

RECOMMENDED PUMPING RATE: 3 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS: 101330

FINAL STATUS OF WELL: 1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED; ☐ DEWATERING

WATER USE: 1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

METHOD OF CONSTRUCTION: 1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☒ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING; ☐ DIGGING; ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: ~~Capital Water Supply Ltd.~~ WELL CONTRACTOR'S LICENCE NUMBER: ~~1558~~

ADDRESS: ~~Box 490 Stittsville, Ontario K2S 1A6~~

NAME OF WELL TECHNICIAN: S. Miller WELL TECHNICIAN'S LICENCE NUMBER: T0097

SIGNATURE OF TECHNICIAN/CONTRACTOR: [signature] SUBMISSION DATE: DAY 20 MO. 6 YR. 91

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 1558 | DATE RECEIVED JUL 26 1991

DATE OF INSPECTION | INSPECTOR

REMARKS: CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ontario — Ministry of the Environment

Well Record

...on 903 Ontario Water Resources Act

Well Tag No. (Place Sticker and/or Print Below): A102353 **A102353**

Measurements recorded in: [X] Metric [ ] Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Amsted Construction Ltd.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
7715 Fallowfield Road	Stittsville	Ontario	K2S 1B6	613 836 7434

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 18 Reis Industrial Park	West Carleton - Huntley	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423260	5017484		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
Brown	Sandy Soil		Loose	0	3.65
Grey	Till			3.65	7.31
Grey	Limestone	Dark Layers	Medium	7.31	106.06

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
10.36	0	Grouted Bentonite Slurry	.526m^3

Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[X] Rotary (Reverse) Mud [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, specify

Well Use

[ ] Public [X] Commercial [ ] Not used
[X] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [ ] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[X] Industrial
[ ] Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
15.86	Steel	.48	+.45	10.36

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Status of Well

[X] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[ ] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, specify
[ ] Other, specify

Water Details

Water found at Depth (m/ft)	Kind of Water	
101.49	[ ] Fresh [X] Untested [ ] Gas [ ] Other, specify	
	[ ] Fresh [ ] Untested [ ] Gas [ ] Other, specify	
	[ ] Fresh [ ] Untested [ ] Gas [ ] Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	10.36	15.86
10.36	106.06	15.23

Results of Well Yield Testing

After test of well yield, water was: [X] Clear and sand free [ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 91.43

Pumping rate (l/min / GPM): 27.3

Duration of pumping: 6 hrs + 21 min

Final water level end of pumping (m/ft): 12.76

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 27.3

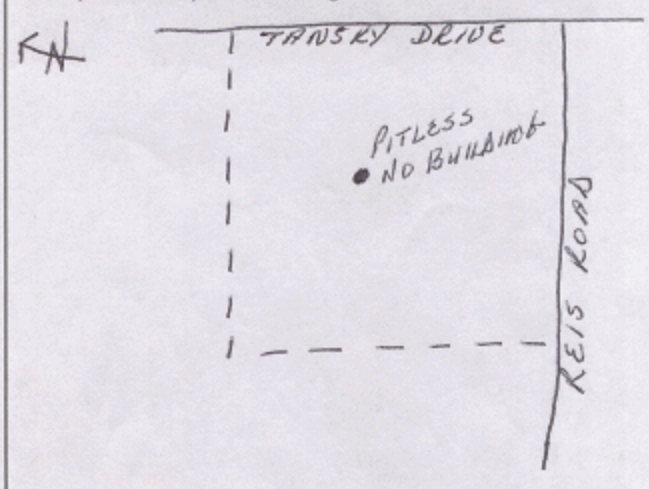
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	1.31		
1	2.66	1	11.21
2	3.52	2	10.10
3	4.29	3	9.14
4	4.85	4	8.24
5	5.28	5	7.40
10	7.02	10	4.48
15	8.20	15	3.20
20	9.07	20	2.68
25	9.70	25	2.51
30	10.19	30	2.30
40	10.93	40	2.00
50	11.43	50	1.72
60	11.74	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S 1A6	office@capitalwater.ca

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 836 1766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2011 05 05

Well owner's information package delivered: [X] Yes [ ] No

Date Package Delivered: 2011 05 05

Date Work Completed: 2011 05 04

Ministry Use Only

Audit No. z115704

Received AUG 05 2011

Ministry's Copy

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below)
A018947
A018947

Well Record
Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only
MUN 15005 CON CON 02 LOT 07

Well Owner's Information and Location of Well Information

[redacted]

RR#/Street Number/Name: OTTAWA-CARLETON MAPLE CREEK	City/Town/Village: HUNTLEY CARP	Site/Compartment/Block/Tract etc.: 7 2 PLAN 4R-17169, P/L3	
GPS Reading: NAD 83 Zone 18 Easting 423466 Northing 5017086	Unit Make/Model: MAGELLAN	Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify	

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
	CLAY			0	4.26
	GRAVEL			4.26	5.18
GREY/BLACK	LIMESTONE			5.18	24.38

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	24.38	15.23

Water Record

Water found at Metres	Kind of Water
18.89 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☒ Minerals ☐ Other: NOT TESTED
21.63 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other: NOT TESTED
m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify NOT TESTED

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
15.88	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.48	0	6.70
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		6.09	24.38

Test of Well Yield

Pumping test method: SubPump

Pump intake set at (metres): 21.35

Pumping rate - (litres/min): 91

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping: 6.02 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 21.35 metres

Recommended pump rate: 91 (litres/min)

If flowing give rate - (litres/min): /

If pumping discontinued, give reason: /

	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level		3.17		
	1	4.12	1	4.34
	2	5.04	2	4.09
	3	5.26	3	4.00
	4	5.54	4	3.92
	5	5.76	5	3.84
	10	6.11	10	3.72
	15	6.24	15	3.65
	20	6.30	20	3.58
	25	6.34	25	
	30	6.37	30	
	40	6.43	40	
	50	6.59	50	
	60	6.62	60	

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.09	0	NEAT CEMENT SLURRY	.227

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

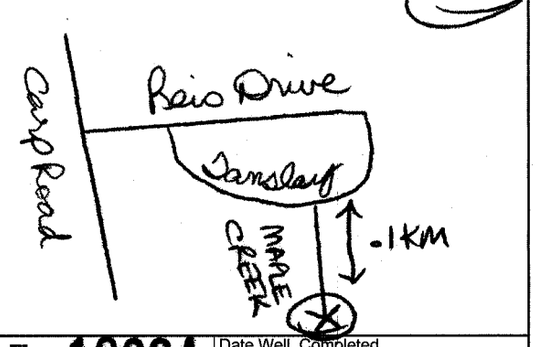
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 19084

Date Well Completed: 2004 10 22

Was the well owner's information package delivered? ☒ Yes ☐ No

Date Delivered: 2004 10 22

Well Contractor/Technician Information

Name of Well Contractor: AIR ROCK DRILLING CO LTD

Well Contractor's Licence No.: 1119

Business Address (street name, number, city etc.): RR#1 RICHMOND, ONT K0A 2Z0

Name of Well Technician (last name, first name): HOGAN DAN

Well Technician's Licence No.: T 3058

Signature of Technician/Contractor: X

Date Submitted: 2004 11 04

Ministry Use Only

Data Source	Contractor: 1119
Date Received: NOV 16 2004	Date of Inspection
Remarks	Well Record Number: 1535188

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☒ Well Owner's Copy ☐

Cette formule est disponible en français

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below): A123489 **Tag#: A123489**

Well Record

tion 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
Crawf Investments			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
3038 Carp Road	Carp	Ontario	K0A 1L0	613 223 1197

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
2710 Carp Road	West Carleton - Huntley		

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423099	5017003		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
Brown	Soil	Stones	Wet	0	1.21
Grey	Till		Packed	1.21	6.09
Grey	Gravel		Packed	6.09	7.61
Grey	Limestone	Dark Layers	Medium	7.61	68.57

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
9.44	0	Grouted Cement & Bentonite	.43m^3

Method of Construction

[ ] Cable Tool [ ] Diamond
[X] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, *specify*

Well Use

[ ] Public [ ] Commercial [ ] Not used
[X] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [X] Test Hole [ ] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[ ] Industrial
[ ] Other, *specify*

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
15.86	Steel	.48	+.45	9.44

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Status of Well

[X] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[ ] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, *specify*
[ ] Other, *specify*

Water Details

Water found at Depth	Kind of Water	
57.90 (m/ft) [ ] Gas	[ ] Fresh [X] Untested [ ] Other, *specify*	
66.44 (m/ft) [ ] Gas	[ ] Fresh [X] Untested [ ] Other, *specify*	
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, *specify*	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	9.44	15.86
9.44	68.57	15.23

Results of Well Yield Testing

After test of well yield, water was: [X] Clear and sand free [ ] Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 4.45

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 15.23

Recommended pump rate (l/min / GPM): 45.5

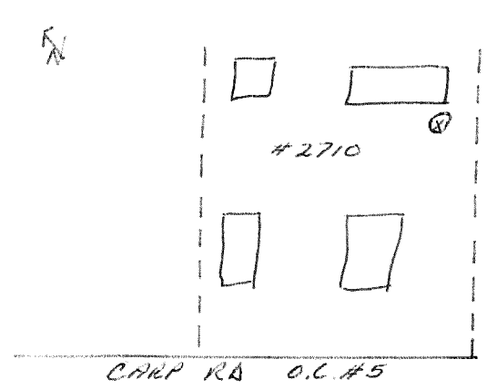
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	3.25		
1	3.45	1	4.12
2	3.55	2	4.01
3	3.61	3	3.97
4	3.64	4	3.90
5	3.68	5	3.87
10	3.82	10	3.73
15	3.90	15	3.70
20	3.94	20	3.64
25	3.99	25	3.61
30	4.05	30	3.58
40	4.00	40	3.54
50	4.53	50	3.51
60	4.45	60	3.49

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S1A6	office@capitalwater.ca

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138361766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		20140918

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	20140918	20140917

Ministry Use Only

Audit No. Z188563

Received DEC 17 2014

Ontario Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11 | 1532109 | Municipality 15005 | Con. CON 02

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa Carleton	West Carleton	Plan 4M745	Pt of 10

[redacted]

Address: 350 Colonian Rd, RR#6 Perth Ont K7H-3C8

Date completed: 05 07 2001 (day month year)

21 | UTM | Northing | RC | Elevation | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
gray	clay			0	18'
brown	gravel			18'	19'
gray	Shale limestone			19'	260'

31

32

41 WATER RECORD

Water found at - feet	Kind of water
50	☑ Sulphur
250	☑ Sulphur

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/4	☑ Steel	.188	0	25

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
25	0	~~Cement~~ Grout
		Quick

PUMPING TEST

Pumping test method: ☑ Pump ☐ Bailer

Pumping rate: 8 GPM

Duration of pumping: 1 Hours ___ Mins

Static level	Water level end of pumping	15 minutes	30 minutes	45 minutes	60 minutes
5 feet	260 feet	125 feet	62 feet	21 feet	5 feet

Water levels during: ☐ Pumping ☑ Recovery

If flowing give rate: ___ GPM

Pump intake set at: ___ feet

Water at end of test: ☑ Clear ☐ Cloudy

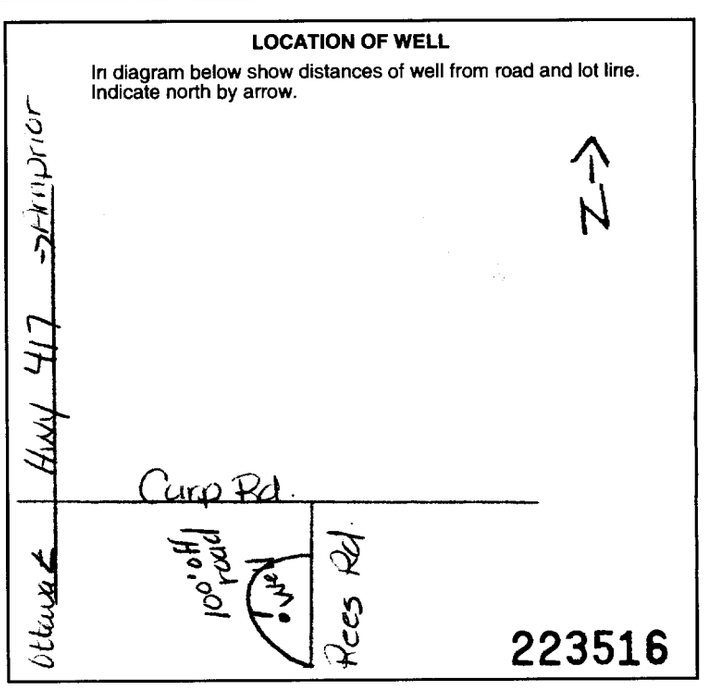
Recommended pump type: ☐ Shallow ☑ Deep

Recommended pump setting: 100 feet

Recommended pump rate: 8 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



223516

FINAL STATUS OF WELL

1 ☑ Water supply
2 ☐ Observation well
3 ☐ Test hole
4 ☐ Recharge well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Abandoned (Other)
8 ☐ Dewatering
9 ☐ Unfinished
10 ☐ Replacement well

WATER USE

1 ☑ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not use
10 ☐ Other

METHOD OF CONSTRUCTION

1 ☐ Cable tool
2 ☐ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☐ Rotary (air)
5 ☑ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving
10 ☐ Digging
11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
George H Law + Son Ltd	3323
Address: Box 155 Calabogie, Ont K0J-1H0	
Name of Well Technician: Alf Law	Well Technician's Licence No. T-0433
Signature of Technician/Contractor: George H Law	Submission date: day 5 mo 7 yr 01

MINISTRY USE ONLY

Data source	Contractor	Date received
	3323	JUL 10 2001
Date of inspection	Inspector	
Remarks		

OSS.ES1

0506 (07/00) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario — Ministry of the Environment

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*: N/A

Well Owner's Information

First Name	Last Name / Organization	Email Address	☐ Well Constructed by Well Owner
	Lee Valley Holdings Ltd c/o Durrell Corp		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
#965 Moodie Drive	Ottawa	Ont	K2K1H4	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
# 2770 Carp Road	West Carleton	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423015	5017392		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
	6" Drilled Well ABANDONMENT See Audit 2108242			80'	0'

MOE Tag # 21682

Test well # 1 – (Valley Drilling - June 23/87)

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
80'	0'	Bentonite Slurry	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify NOT USEABLE
☐ Other, specify

Water Details

Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

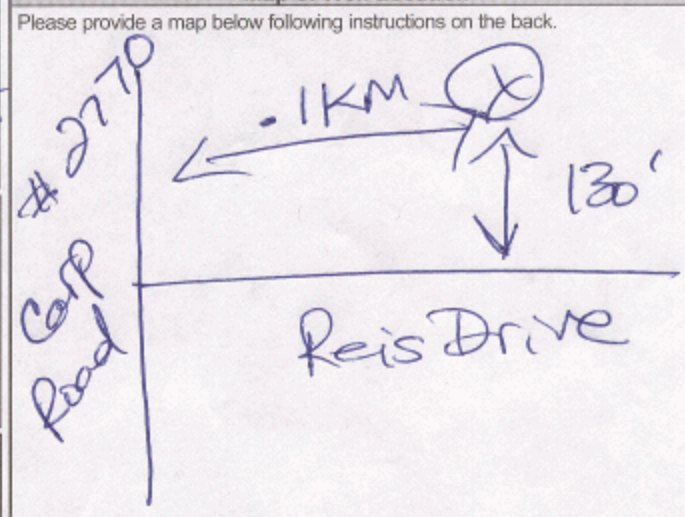
Well production (l/min / GPM)

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Test Well #1

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co Ltd	1119

Business Address (Street Number/Name)	Municipality
RR#1	Richmond

Province	Postal Code	Business E-mail Address
ONT	K0A2Z0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138382170	Desaulniers Ken

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T4		20100315

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No		20100209

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Audit No. Z 108234

MAR 22 2010 Received

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Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*: N/A

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Lee Valley Holdings Ltd c/o Durrell Corp		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
#965 Moodie Drive	Ottawa	Ont	K2R 1H4	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
#2770 Carp Road	West Carleton	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423015	5017392		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
①	6" Drilled	Well	ABANDONMENT	142'	90'
②	✓	✓	✓	90'	80'

Test Well #1 (MOE Tag # 21682 Valley Drilling - June 23/87)

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
142'	90'	Hole Plug	
90'	80'	Neat Cement Slurry	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☒ Other, specify — PARTIAL ABANDON

Water Details

Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

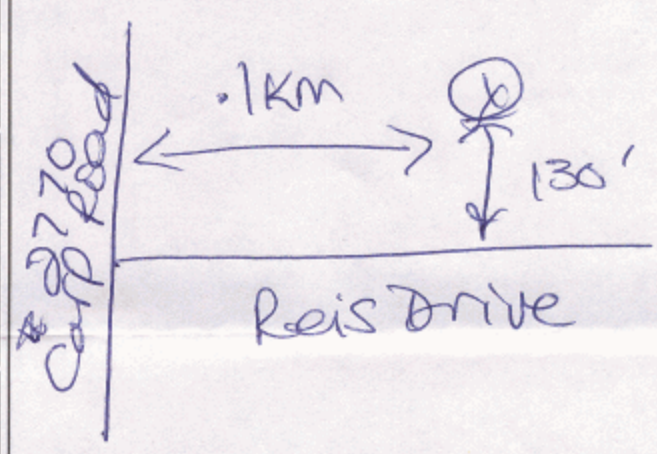
Well production (l/min / GPM)

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Test well #1

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
AIR Rock Drilling Co LTD	1119

Business Address (Street Number/Name)	Municipality
RR#1	Richmond

Province	Postal Code	Business E-mail Address
ONT	K0A 2Z0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 838 2170	Desaulniers Ken

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T4		20100122

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No	20100114	20100111

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Audit No. Z108242

Date Received MAR 18 2010

0506E (12/2007)

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A 093598

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well T[illegible] Below) A093598

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
Lee Valley	Holdings Ltd c/o Durrell Corp		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
965 Moodie Drive	Ottawa	Ont	K2R 1H4	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
#2770 Carp Road	West Carleton	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	422847	5017220.		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
	Grey Clay			0'	19'
	Sand, Gravel + Boulders			19'	32'
	Gray Limestone			32'	320'
	Test well #5				

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m/ft³)
54'	0'	Neat Cement Slurry	24.96

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6"	Steel	.188"	0'	54'
6"	Open hole		54'	320'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	Kind of Water	
297	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
311	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	320'	6"

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify TESTED

If pumping discontinued, give reason:

Pump intake set at (m/ft): 280'

Pumping rate (l/min / GPM): 8 U.S.

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 92'6"

If flowing give rate (l/min / GPM): ∅

Recommended pump depth (m/ft): 200' (3/4)

Recommended pump rate (l/min / GPM): 6

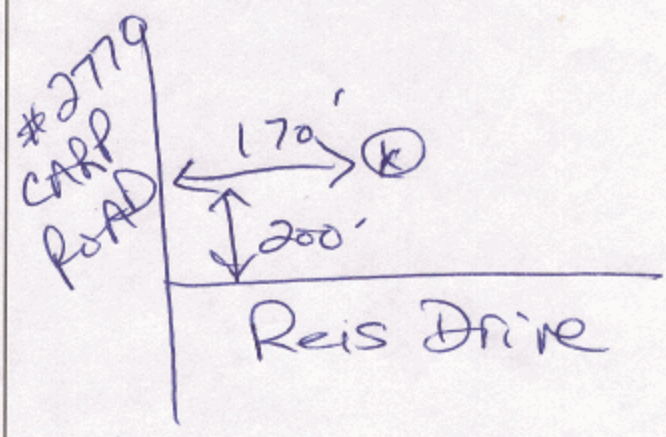
Well production (l/min / GPM): 6

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	3'3"		92'6"
1	9'7"	1	82'
2	13'8"	2	76'4"
3	16'2"	3	71'6"
4	19'6"	4	69'2"
5	25'3"	5	59'4"
10	37'7"	10	48'6"
15	48'4"	15	35'7"
20	58'4"	20	23'
25	65'6"	25	17'2"
30	70'9"	30	12'5"
40	82'5"	40	7'3"
50	89'9"	50	3'3"
60	92'6"	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Test well #5

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
AIR ROCK DRILLING Co LTD	1119

Business Address (Street Number/Name)	Municipality
RR#1	RICHMOND

Province	Postal Code	Business E-mail Address
ONT	K0A2Z0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 838 2170	PURCELL SHANNON

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T2122	[signature]	20100205

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No	2009/12/23	2009/12/21

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Audit No. Z108268

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A 093680

Well (Below): A093680

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
LEE	VALLEY HOLDINGS LTD	C/o Durrell Corp	

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
965 Moodie Drive	Ottawa	Ont	K2R 1H4	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
#2770 Carp Road	West Carleton	8	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	423025	5017411		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
	Sand + Gravel			0'	20'
	Grey Limestone			20'	160'

Test well #6

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
52'	42'	Neat Cement Slurry	7.8
42'	0'	Neat Bentonite Slurry	16.8

Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, specify: TESTED

If pumping discontinued, give reason:

Pump intake set at (m/ft): 140'

Pumping rate (l/min / GPM): 18 U.S.

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 112' 4"

If flowing give rate (l/min / GPM): X

Recommended pump depth (m/ft): 140'

Recommended pump rate (l/min / GPM): 15

Well production (l/min / GPM): 15

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	4'		112'4"
1	12'8"	1	82'6"
2	22'6"	2	76'
3	25'2"	3	68'8"
4	29'3"	4	63'4"
5	32'2"	5	55'9"
10	50'8"	10	43'
15	69'5"	15	34'6"
20	77'4"	20	28'
25	84'5"	25	23'3"
30	91'1"	30	18'4"
40	93'5"	40	13'6"
50	105'3"	50	8'2"
60	112'4"	60	4'1"

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6"	Steel	.188"	+2'	52'
6"	Open hole		52'	160'

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Water Details

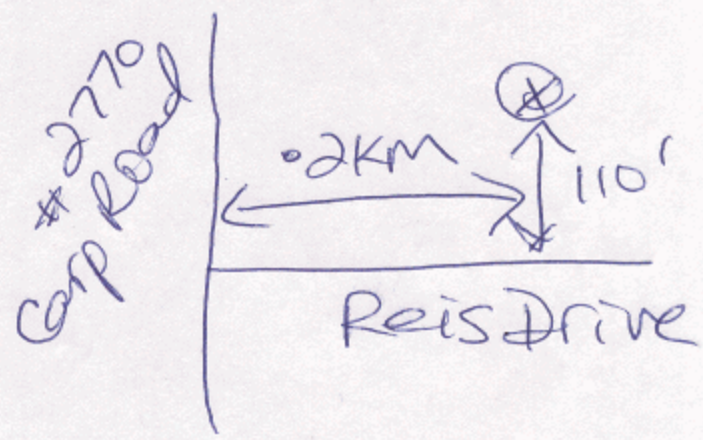
Water found at Depth (m/ft)	Kind of Water	
148	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
155	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	160'	6"

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Test Well #6

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
AIRROCK DRILLING & LTD	1119

Business Address (Street Number/Name)	Municipality
RR#1	RICHMOND

Province	Postal Code	Business E-mail Address
ONT	K0A 2Z0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 838 2170	PURCEL SHANNON

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T2122		2010 03 15

Well owner's information package delivered	Date Package Delivered
☒ Yes ☐ No	2010 03 09

Date Work Completed: 2010 03 08

Ministry Use Only

Audit No. Z108235

MAR 22 2010 Received

0506E (12/2007)

Ministry's Copy

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HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX C
TW1 WELL RECORD

McINTOSH PERRY

Ontario Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11 | 1531859 | Municipality 15005 | Con. CON 02

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot 25-27
Ottawa Carleton	West Carleton Huntley	2	7

[redacted]

Address: 60 Robertson Rd., Nepean, ON. K2H 5Y8

Date completed: 24 day 04 month 01 year (48-53)

21 | UTM | Northing | RC | Elevation | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Hardpan	Boulders		0	14
Grey	hardpan	Boulders		14	28'6"
Grey	limestone	dark layers		28'6"	275
Grey	limestone			275	279

31 | 32

41 WATER RECORD

Water found at - feet	Kind of water
275 (10-13)	1 ☒ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (14)
(15-18)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (19)
(20-23)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (24)
(25-28)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (29)
(30-33)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (34)

60

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/4 (11)	1 ☒ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	34 (13-16)
(17-18) 5 15/16	1 ☐ Steel (19) 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		34	275 (20-23)
(24-25) 5 3/4	1 ☐ Steel (26) 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		275	279 (27-30)

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38) inches	Length (39-40) feet
Material and type	Depth at top of screen (41-44) feet	30

61 PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
34 (10-13)	0 (14-17)	Grouted-cement (4)
(18-21)	(22-25)	
(26-29)	(30-33)	60

71 PUMPING TEST

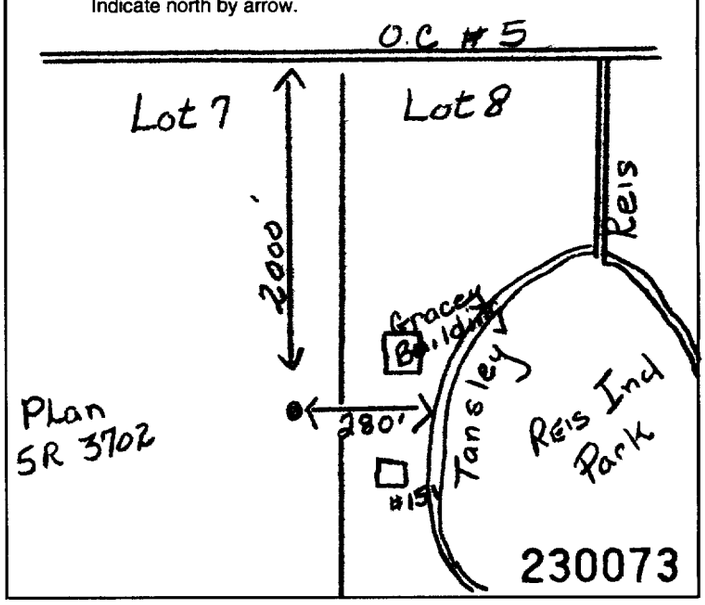
Pumping test method (10)	Pumping rate (11-14)	Duration of pumping (15-16) Hours (17-18) Mins
1 ☒ Pump 2 ☐ Bailer	4 GPM	1 Hours

Static level (19-21)	Water level end of pumping (22-24)	Water levels during (25) 1 ☐ Pumping 2 ☒ Recovery			
		15 minutes (26-28)	30 minutes (29-31)	45 minutes (32-34)	60 minutes (35-37)
11 feet	122 feet	82 feet	56 feet	37 feet	27 feet

If flowing give rate (38-41)	Pump intake set at	Water at end of test (42)
GPM	150 feet	☐ Clear ☒ Cloudy
Recommended pump type (50-53) ☐ Shallow ☒ Deep	Recommended pump setting (43-45) 260 feet	Recommended pump rate (46-49) 3 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



FINAL STATUS OF WELL (54)

1 ☒ Water supply
2 ☐ Observation well
3 ☐ Test hole
4 ☐ Recharge well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Abandoned (Other)
8 ☐ Dewatering
9 ☐ Unfinished
10 ☐ Replacement well

WATER USE (55-56)

1 ☒ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not use
10 ☐ Other

METHOD OF CONSTRUCTION (57)

1 ☒ Cable tool 275-279
2 ☐ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☒ Rotary (air)
5 ☒ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving
10 ☐ Digging
11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address: Box 490, Stittsville, ON. K2S 1A6	
Name of Well Technician: S. Miller, P. Stanton	Well Technician's Licence No.: T0097, T0086
Signature of Technician/Contractor: R. Kawanch	Submission date: day 30 mo 04 yr 01

MINISTRY USE ONLY

Data source (58)	Contractor (59-62)	Date received (63-68)	80
	1558	MAY 25 2001	
Date of inspection	Inspector		
Remarks	CSS.ES1		

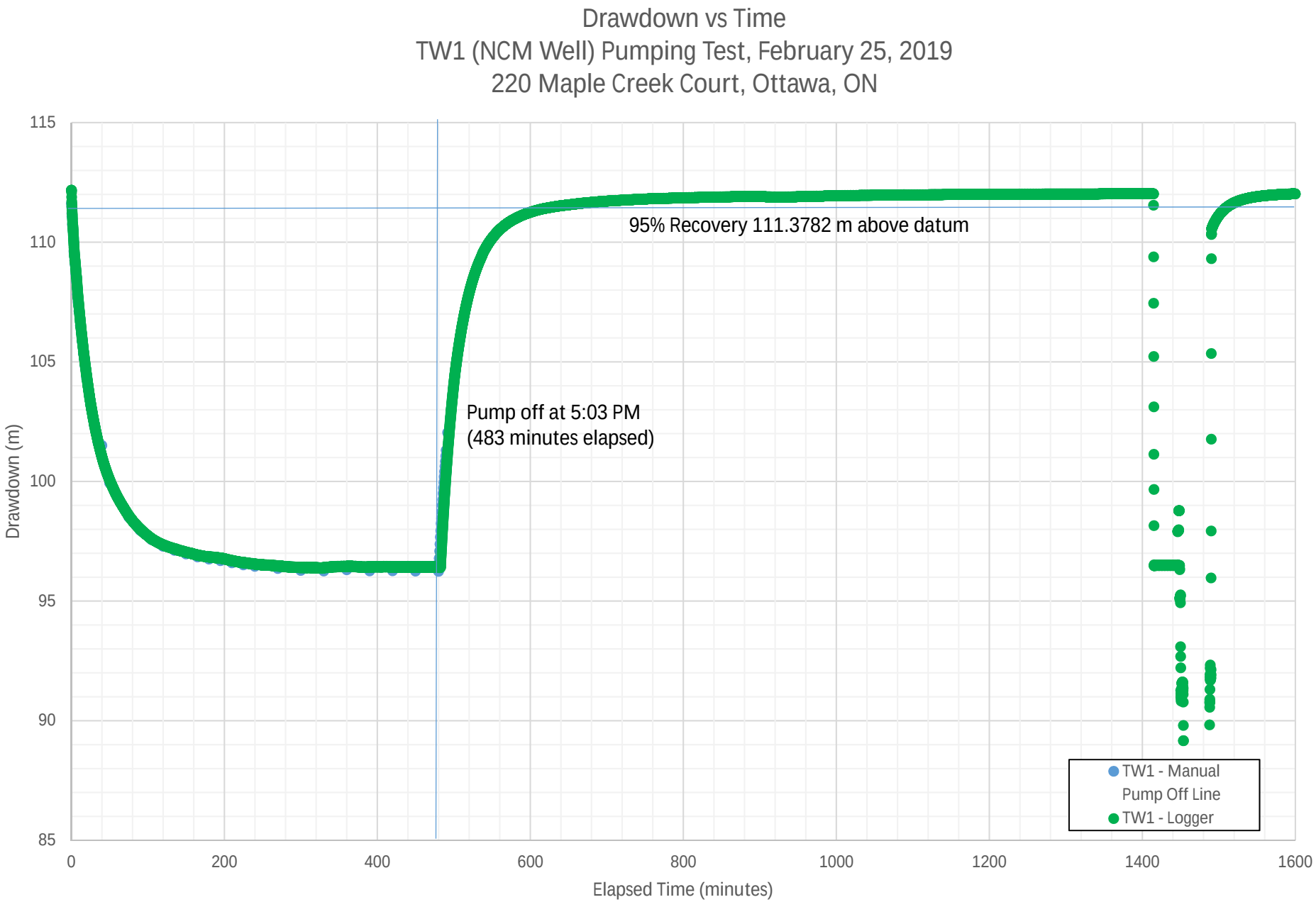
2 - MINISTRY OF THE ENVIRONMENT COPY

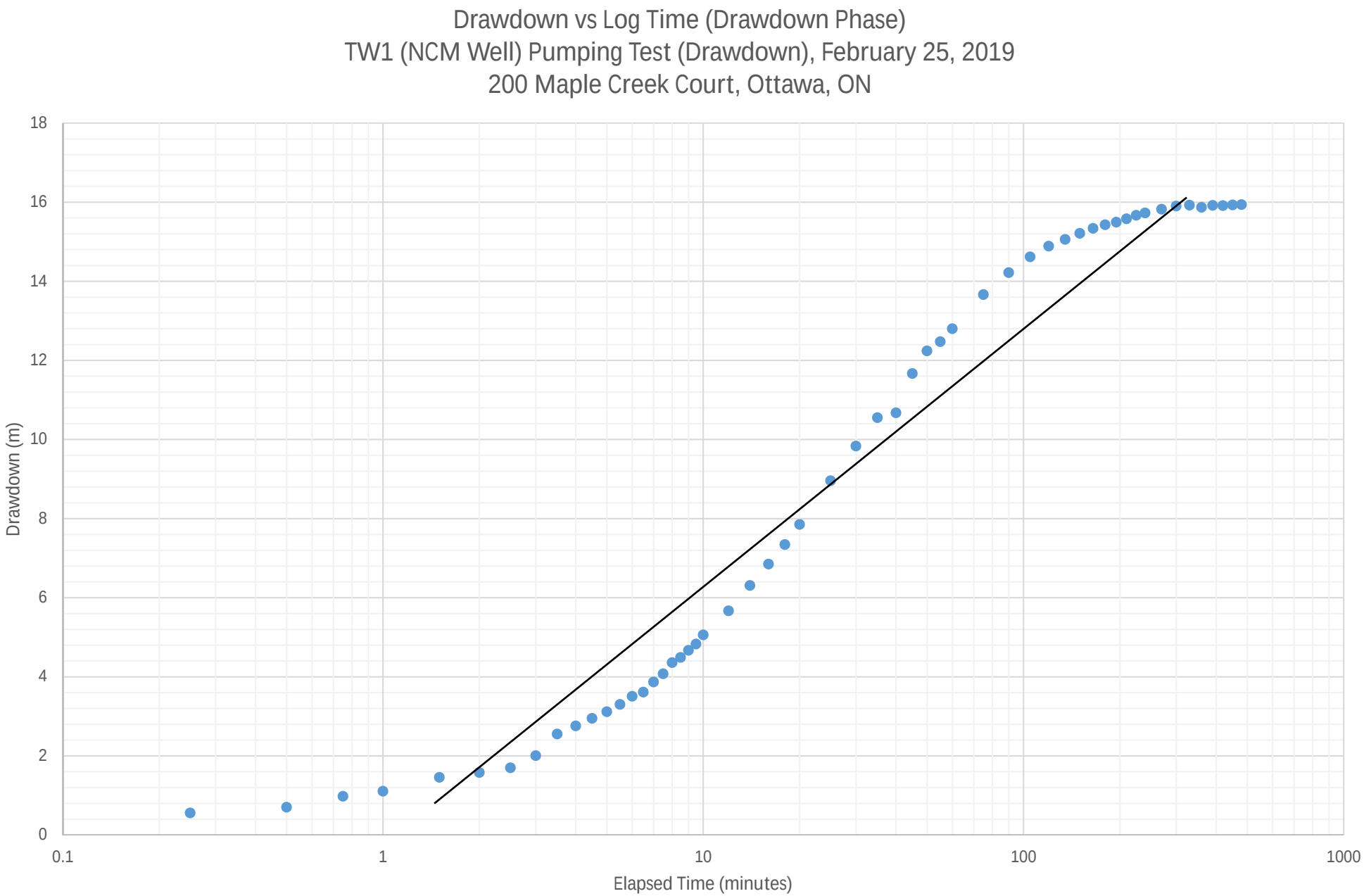
0506 (07/00) Front Form 9

HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX D
WATER LEVEL DATA AND PUMPING TEST ANALYSIS

McINTOSH PERRY


Drawdown vs Time
TW1 (NCM Well) Pumping Test, February 25, 2019
220 Maple Creek Court, Ottawa, ON
95% Recovery 111.3782 m above datum
Pump off at 5:03 PM
(483 minutes elapsed)
TW1 - Manual
Pump Off Line
TW1 - Logger
Drawdown (m)
Elapsed Time (minutes)
115
110
105
100
95
90
85
0
200
400
600
800
1000
1200
1400
1600


Drawdown vs Log Time (Drawdown Phase)
TW1 (NCM Well) Pumping Test (Drawdown), February 25, 2019
200 Maple Creek Court, Ottawa, ON
Drawdown (m)
0
2
4
6
8
10
12
14
16
18
0.1
1
10
100
1000
Elapsed Time (minutes)

COOPER-JACOB ANALYSIS for Constant-Rate Pump Tests

Project Name: Hydrogeological Assessment - 200 Maple Creek Court
Project Number: CP-18-0512
Well: **TW1**
Date: **25-Feb-19** Test **1 of 1**

Pumping Rate: **11.36** L/min 16.4 m^3/day
Duration of test: **483** minutes
r: **0.079** m (radius of well being analyzed from pumping well)

Water level data for the well being analyzed are plotted on a semi-log scale (drawdown vs. log time)
A best-fit line is drawn through a representative portion of the data.
The best-fit line is drawn through the data between **45** and **367** minutes
(based on casing storage analysis, derivative analysis, or judgement)

The slope and intercept of the best-fit line are given below:
Δh: **15.936** m (metres of drawdown over one log cycle of time)
t_0: (time extrapolated to a point of zero drawdown)

Transmissivity and Storativity are calculated using the Cooper-Jacob equation, as given below:

$$T = \frac{2.303Q}{4\pi\Delta h}$$

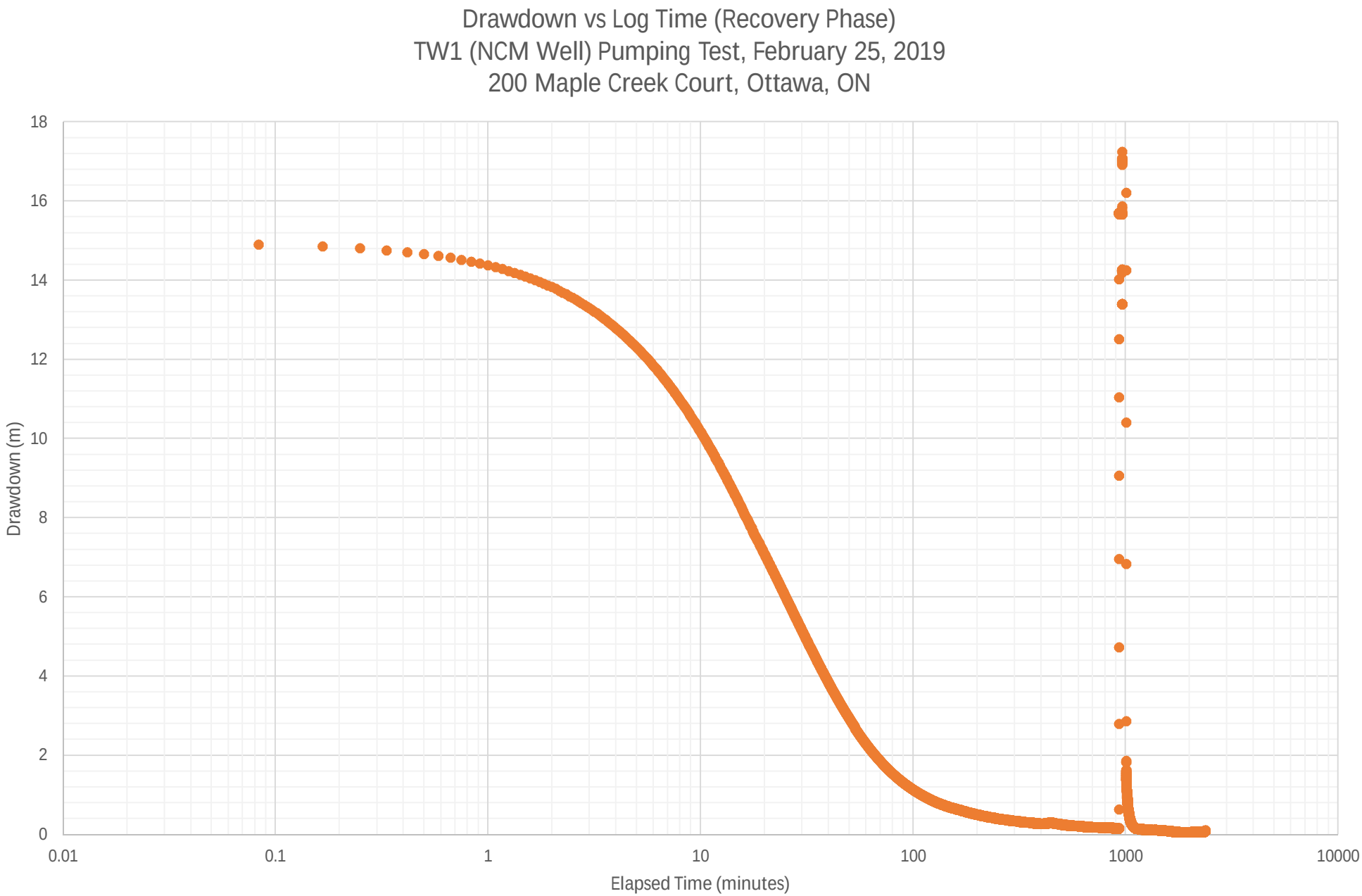
$$S = 2.2459\frac{Tt_0}{r^2}$$

T: 0.2 m^2/d **S:** 0 (dimensionless)
(storativity is typically not calculated for fractured-rock aquifers)

Hydraulic Conductivity (K) can be calculated by dividing Transmissivity by Aquifer Thickness (b).

For a thickness of b = 74.676 m, K = 2.9E-08 m/s

Comments:
Aquifer thickness of 74.676 m corresponds to open hole in bedrock below casing
(casing to 10.36 m BGS, stickup of 0.6 m, WL at 3.35 m BTOC, end of hole at 85.04 m BGS)


Drawdown vs Log Time (Recovery Phase)
TW1 (NCM Well) Pumping Test, February 25, 2019
200 Maple Creek Court, Ottawa, ON
Drawdown (m)
18
16
14
12
10
8
6
4
2
0
0.01
0.1
1
10
100
1000
10000
Elapsed Time (minutes)

HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX E
LABORATORY CERTIFICATES OF ANALYSIS

McINTOSH PERRY

Certificate of Analysis

eurofins | Environment Testing

Client: McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Rd., R.R. #3
Carp, ON
K0A 1L0
Attention: Mr. Daniel Arnott
PO#:
Invoice to: McIntosh Perry Consulting Engineers Ltd.

Report Number: 1901504
Date Submitted: 2019-01-31
Date Reported: 2019-02-03
Project: CP-18-0512
COC #: 71572

Dear Daniel Arnott:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Dragana Dzeletovic, Team Leader

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: http://www.cala.ca/scopes/2602.pdf.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

eurofins | Environment Testing

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115 Walgreen Rd., R.R. #3
Carp, ON
K0A 1L0
Attention: Mr. Daniel Arnott
PO#:
Invoice to: McIntosh Perry Consulting Engineers Ltd.

Report Number: 1901504
Date Submitted: 2019-01-31
Date Reported: 2019-02-03
Project: CP-18-0512
COC #: 71572

				Lab I.D.	1409420
				Sample Matrix	Water
				Sample Type	
				Sampling Date	2019-01-30
				Sample I.D.	TW1-1 Bacti
Group	**Analyte**	**MRL**	**Units**	**Guideline**	
Microbiology	Escherichia Coli	0	ct/100mL		0
	Faecal Coliforms	0	ct/100mL		0
	Faecal Streptococcus	0	ct/100mL		0
	Heterotrophic Plate Count	0	ct/1mL		19
	Total Coliforms	0	ct/100mL		1

Guideline = *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Analytical Method: AMBCOLM1
additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

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K0A 1L0
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PO#:
Invoice to: McIntosh Perry Consulting Engineers Ltd.

Report Number: 1901504
Date Submitted: 2019-01-31
Date Reported: 2019-02-03
Project: CP-18-0512
COC #: 71572

QC Summary

Analyte	Extraction/Analysis Dates	Blank	QC % Rec	QC Limits
Run No 360189	**Analysis/Extraction Date** 2019-02-01	**Analyst** DRA		
Method AMBCOLM1				
Escherichia Coli	2019-02-01 / 2019-01-31			
Faecal Coliforms	2019-02-01 / 2019-01-31			
Faecal Streptococcus	2019-02-02 / 2019-01-31			
Total Coliforms	2019-02-01 / 2019-01-31			
Method SM9215D				
Heterotrophic Plate Count	2019-02-02 / 2019-01-31			

Guideline = *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Analytical Method: AMBCOLM1
additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Client:	McIntosh Perry Consulting Engineers Ltd. 115 Walgreen Rd., R.R. #3 Carp, ON K0A 1L0	Report Number:	1901532
		Date Submitted:	2019-01-31
		Date Reported:	2019-02-06
		Project:	CP-18-0512
Attention:	Mr. Daniel Arnott	COC #:	71572
PO#:			
Invoice to:	McIntosh Perry Consulting Engineers Ltd.		

Dear Daniel Arnott:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Addrine Thomas, Inorganics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: http://www.cala.ca/scopes/2602.pdf.

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Certificate of Analysis

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Carp, ON
K0A 1L0
Attention: Mr. Daniel Arnott
PO#:
Invoice to: McIntosh Perry Consulting Engineers Ltd.

Report Number: 1901532
Date Submitted: 2019-01-31
Date Reported: 2019-02-06
Project: CP-18-0512
COC #: 71572

				Lab I.D.	1409523
				Sample Matrix	Water
				Sample Type	
				Sampling Date	2019-01-30
				Sample I.D.	TW1-1
Group	**Analyte**	**MRL**	**Units**	**Guideline**	
Anions	Cl	1	mg/L	AO 250	64
	F	0.10	mg/L	MAC 1.5	0.93
	N-NO2	0.10	mg/L	MAC 1.0	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10
	SO4	1	mg/L	AO 500	34
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 500	219
	Colour	2	TCU	AO 5	<2
	Conductivity	5	uS/cm		642
	pH	1.00		6.5-8.5	8.10
	S2-	0.01	mg/L	AO 0.05	2.13*
	TDS (COND - CALC)	1	mg/L	AO 500	417
	Turbidity	0.1	NTU	AO 5.0	17.9*
Hardness	Hardness as CaCO3	1	mg/L	OG 100	195*
Indices/Calc	Ion Balance	0.01			0.93
Metals	Ca	1	mg/L		42
	Fe	0.03	mg/L	AO 0.3	0.54*
	K	1	mg/L		5
	Mg	1	mg/L		22
	Mn	0.01	mg/L	AO 0.05	0.02
	Na	2	mg/L	AO 200	55
Subcontract-Inorg	DOC	0.5	mg/L	AO 5	1.7
	N-NH3	0.01	mg/L		0.11
	Phenols	0.001	mg/L		<0.001
	Tannin & Lignin	0.1	mg/L		<0.1
	Total Kjeldahl Nitrogen	0.1	mg/L		0.2

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

eurofins | Environment Testing

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115 Walgreen Rd., R.R. #3
Carp, ON
K0A 1L0
Attention: Mr. Daniel Arnott
PO#:
Invoice to: McIntosh Perry Consulting Engineers Ltd.

Report Number: 1901532
Date Submitted: 2019-01-31
Date Reported: 2019-02-06
Project: CP-18-0512
COC #: 71572

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 360205 **Analysis/Extraction Date** 2019-01-31 **Analyst** AA **Method** C SM2120C			
Colour	<2 TCU	95	90-110
Run No 360221 **Analysis/Extraction Date** 2019-01-31 **Analyst** AA **Method** C SM2130B			
Turbidity	<0.1 NTU	99	70-130
Run No 360264 **Analysis/Extraction Date** 2019-02-01 **Analyst** SKH **Method** M SM3120B-3500C			
Calcium	<1 mg/L	98	90-110
Potassium	<1 mg/L	105	87-113
Magnesium	<1 mg/L	96	76-124
Sodium	<2 mg/L	108	82-118
Run No 360268 **Analysis/Extraction Date** 2019-02-01 **Analyst** H D **Method** EPA 200.8			
Iron	<0.03 mg/L	95	91-109
Manganese	<0.01 mg/L	99	92.9-107
Run No 360322 **Analysis/Extraction Date** 2019-02-04 **Analyst** AET **Method** C SM4500-S2-D			
S2-	<0.01 mg/L	82	80-120

Guideline = ODWSOG *** = Guideline Exceedence**

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Certificate of Analysis

eurofins | Environment Testing

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115 Walgreen Rd., R.R. #3
Carp, ON
K0A 1L0
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PO#:
Invoice to: McIntosh Perry Consulting Engineers Ltd.

Report Number: 1901532
Date Submitted: 2019-01-31
Date Reported: 2019-02-06
Project: CP-18-0512
COC #: 71572

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 360349 **Analysis/Extraction Date** 2019-02-04 **Analyst** AET **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	103	90-110
Conductivity	<5 uS/cm	101	90-110
F	<0.10 mg/L	99	90-110
pH		100	90-110
Run No 360404 **Analysis/Extraction Date** 2019-02-06 **Analyst** H F **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO2	<0.10 mg/L	99	90-110
N-NO3	<0.10 mg/L	101	90-110
SO4	<1 mg/L	100	90-110
Run No 360443 **Analysis/Extraction Date** 2019-02-01 **Analyst** REE **Method** SUBCONTRACT P-INORG			
DOC	<0.5 mg/L	104	
N-NH3	<0.01 mg/L	98	
Phenols	<0.001 mg/L	100	69-132
Tannin & Lignin	<0.1 mg/L	100	
Total Kjeldahl Nitrogen	<0.1 mg/L	95	81-126

Guideline = ODWSOG *** = Guideline Exceedence**

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Methods references and/or additional QA/QC information available on request.

Certificate of Analysis

eurofins | Environment Testing

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115 Walgreen Rd., R.R. #3
Carp, ON
K0A 1L0
Attention: Mr. Daniel Arnott
PO#:
Invoice to: McIntosh Perry Consulting Engineers Ltd.

Report Number: 1901532
Date Submitted: 2019-01-31
Date Reported: 2019-02-06
Project: CP-18-0512
COC #: 71572

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 360448 **Analysis/Extraction Date** 2019-02-06 **Analyst** AET **Method** C SM2340B			
Hardness as CaCO3			
Ion Balance			
TDS (COND - CALC)			

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

DRINKING WATER CHAIN OF CUSTODY

eurofins

- ☐ 146 Colonnade Rd., Unit 8, Ottawa, ON K2E 7Y1 Ph: (613) 727-5692 Fax: (613) 727-5222
- ☐ 608 Norris Court, Kingston, ON K7P 2R9 Ph: (613) 634-9307 Fax: (613) 634-9308
- ☐ 380 Vansickle Rd., Unit 630, St. Catharines, ON L2S 0B5 Ph: (905) 680-8887 Fax: (905) 680-4256
- ☐ 2395 Speakman Drive, Mississauga, ON, L5K 1B3 Phone: (905) 822-4111 Fax : (905) 823-1446

71572

LABORATORY USE ONLY
Report #: 1901504

Company Name: *(Required)* McIntosh Perry	Address: *(Required)* 115 Walgreen Rd	E-mail Results to: d.arnott@mcintoshperry.com
Report Attention: *(Required)* Dan Arnott	City/Prov: *(Required)* Carp ON / Postal Code: K0A 1L0	Fax Results to:
Phone: *(Required)* 613.714.4589 Ext:	Project # CP-18-0512 / Quotation # *(if provided)*	**The optimal temperature conditions during transport must be less than 10C. Sample cannot be frozen.**
Waterworks Name: *(Required)* N/A (Test well)	**Waterworks Number:** *(Required)* N/A (Test well)	**Note that for drinking water samples, all exceedances will be reported where (and how) the application legislation requires.**

Invoice to:
(if different from above)

_____

_____

SAMPLE ANALYSIS REQUIRED

⇦ Lead Filter: bypass, left on, removed, no device

Sample ID	Date/Time Collected	Sample Type Code (see Codes below)	Resample? Y = Yes N = No	MOE/MOH Reportable? Y = Yes N = No	# of Containers	** Service Required R=Rush S=Standard	City of Ottawa Subd. Supply	Bacti					Chlorine Residual (mg/L) Free ☐ Combined ☐	Tap Location (i.e. kitchen, fountain etc. for plumbing samples)	Criteria Required (i.e. Reg170, Reg318/319, Reg243, potability etc.)	Laboratory Identification Use Only
TW1-1	30-Jan-19 14:15	RW	N	N		S	X									1409420

REQUIRED REQUIRED

Sample Type Codes for Drinking Water Systems: **RW** = Raw Water, **TW** = Treated Water at Point of Entry to distribution, **TW-NT** = Untreated Water at Point of Entry to distribution, **DW** = Distribution
RP = Residential Plumbing, **NRP** = Non-Residential Plumbing, **S** = Standing, **F** = Flushed, **PW** = Private Well
"MOE/MOH Reportable" refers to the requirements under the SDWA for immediate reporting of results, which are indicators of adverse water quality, to the Owner/Operator, MOE, or MOH Medical Officer.

Sampled By: R. Leduc Print: Sig:	Date/Time: 30-Jan-19	Relinquished By: D. Arnott Print: Sig:	Date/Time: 31-Jan-19	Comments	**Cooler Temp (°C) on Receipt**
Work Authorized By (signature): Print: Sig:	Date/Time:	Received By Lab: Print: Sig:	Date/Time: Jan 31/19	10.15	10

If not complete, analysis will proceed only on verification of missing information.
**** There may be surcharges applied to "Rush" service.** Please check with lab prior to submission of samples for rush analysis to confirm availability and pricing.

AFCOCDW.5

Copies: White - Laboratory, Yellow - Sampler

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

300 - 2319 St. Laurent Blvd
Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

McIntosh Perry Consulting Eng. (Carp)

115 Walgreen Rd.
Carp, ON K0A 1L0
Attn: Rebecca Leduc

Client PO:
Project: OCP-18-0512
Custody: 8263

Report Date: 1-Mar-2019
Order Date: 26-Feb-2019

Order #: 1909178

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1909178-01	TW1-1
1909178-02	TW1-2

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis
Client: McIntosh Perry Consulting Eng. (Carp)
Client PO:

Report Date: 01-Mar-2019
Order Date: 26-Feb-2019
Project Description: OCP-18-0512

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	27-Feb-19	27-Feb-19
Ammonia, as N	EPA 351.2 - Auto Colour	28-Feb-19	28-Feb-19
Anions	EPA 300.1 - IC	26-Feb-19	26-Feb-19
Colour	SM2120 - Spectrophotometric	26-Feb-19	27-Feb-19
Conductivity	EPA 9050A- probe @25 °C	27-Feb-19	27-Feb-19
Dissolved Organic Carbon	MOE E3247B - Combustion IR, filtration	27-Feb-19	27-Feb-19
E. coli	MOE E3407	26-Feb-19	26-Feb-19
Fecal Coliform	SM 9222D	26-Feb-19	26-Feb-19
Heterotrophic Plate Count	SM 9215C	26-Feb-19	26-Feb-19
Metals, ICP-MS	EPA 200.8 - ICP-MS	27-Feb-19	27-Feb-19
pH	EPA 150.1 - pH probe @25 °C	27-Feb-19	27-Feb-19
Phenolics	EPA 420.2 - Auto Colour, 4AAP	27-Feb-19	27-Feb-19
Subdivision Package	Hardness as CaCO3	27-Feb-19	27-Feb-19
Sulphide	SM 4500SE - Colourimetric	28-Feb-19	28-Feb-19
Tannin/Lignin	SM 5550B - Colourimetric	28-Feb-19	28-Feb-19
Total Coliform	MOE E3407	26-Feb-19	26-Feb-19
Total Dissolved Solids	SM 2540C - gravimetric, filtration	28-Feb-19	1-Mar-19
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	27-Feb-19	27-Feb-19
Turbidity	SM 2130B - Turbidity meter	26-Feb-19	26-Feb-19

PARACEL LABORATORIES LTD.

Order #: 1909178

Certificate of Analysis

Client: McIntosh Perry Consulting Eng. (Carp)

Client PO:

Report Date: 01-Mar-2019

Order Date: 26-Feb-2019

Project Description: OCP-18-0512

	Client ID:	TW1-1	TW1-2	-	-
	Sample Date:	02/25/2019 14:25	02/25/2019 16:35	-	-
	Sample ID:	1909178-01	1909178-02	-	-
	MDL/Units	Water	Water	-	-
Microbiological Parameters					
E. coli	1 CFU/100 mL	ND [1]	ND	-	-
Fecal Coliforms	1 CFU/100 mL	ND	ND	-	-
Total Coliforms	1 CFU/100 mL	ND [1]	ND	-	-
Heterotrophic Plate Count	10 CFU/mL	390	<10	-	-
General Inorganics					
Alkalinity, total	5 mg/L	211	217	-	-
Ammonia as N	0.01 mg/L	0.03	0.10	-	-
Dissolved Organic Carbon	0.5 mg/L	1.6	1.1	-	-
Colour	2 TCU	42	5	-	-
Conductivity	5 uS/cm	654	583	-	-
Hardness	mg/L	244	245	-	-
pH	0.1 pH Units	7.8	7.9	-	-
Phenolics	0.001 mg/L	<0.001	<0.001	-	-
Total Dissolved Solids	10 mg/L	422	392	-	-
Sulphide	0.02 mg/L	0.35	2.92	-	-
Tannin & Lignin	0.1 mg/L	<0.1	<0.1	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	<0.1	<0.1	-	-
Turbidity	0.1 NTU	24.8	9.9	-	-
Anions					
Chloride	1 mg/L	68	50	-	-
Fluoride	0.1 mg/L	0.9	0.9	-	-
Nitrate as N	0.1 mg/L	<0.1	<0.1	-	-
Nitrite as N	0.05 mg/L	<0.05	<0.05	-	-
Sulphate	1 mg/L	38	33	-	-
Metals					
Calcium	100 ug/L	60200	60700	-	-
Iron	100 ug/L	2430	106	-	-
Magnesium	200 ug/L	22700	22800	-	-
Manganese	5 ug/L	69	9	-	-
Potassium	100 ug/L	3650	4110	-	-
Sodium	200 ug/L	54300	43600	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Dissolved Organic Carbon	ND	0.5	mg/L						
Colour	ND	2	TCU						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Turbidity	ND	0.1	NTU						
Metals									
Calcium	ND	100	ug/L						
Iron	ND	100	ug/L						
Magnesium	ND	200	ug/L						
Manganese	ND	5	ug/L						
Potassium	ND	100	ug/L						
Sodium	ND	200	ug/L						
Microbiological Parameters									
E. coli	ND	1	CFU/100 mL						
Fecal Coliforms	ND	1	CFU/100 mL						
Total Coliforms	ND	1	CFU/100 mL						
Heterotrophic Plate Count	ND	10	CFU/mL						

Certificate of Analysis
Client: McIntosh Perry Consulting Eng. (Carp)
Client PO:

Report Date: 01-Mar-2019
Order Date: 26-Feb-2019
Project Description: OCP-18-0512

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	68.5	1	mg/L	67.7			1.1	10	
Fluoride	0.92	0.1	mg/L	0.93			0.9	10	
Nitrate as N	ND	0.1	mg/L	ND				20	
Nitrite as N	ND	0.05	mg/L	ND				20	
Sulphate	38.6	1	mg/L	38.4			0.3	10	
General Inorganics									
Alkalinity, total	210	5	mg/L	211			0.5	14	
Ammonia as N	0.045	0.01	mg/L	0.034			28.0	18	QR-01
Dissolved Organic Carbon	2.3	0.5	mg/L	2.3			1.8	37	
Colour	41	2	TCU	42			2.4	12	
Conductivity	644	5	uS/cm	654			1.5	11	
pH	7.9	0.1	pH Units	7.8			0.4	10	
Phenolics	ND	0.001	mg/L	ND				10	
Total Dissolved Solids	368	10	mg/L	392			6.3	10	
Sulphide	0.33	0.02	mg/L	0.35			4.7	10	
Tannin & Lignin	ND	0.1	mg/L	ND			0.0	11	
Total Kjeldahl Nitrogen	ND	0.1	mg/L	ND				10	
Turbidity	25.1	0.1	NTU	24.8			1.2	10	
Metals									
Calcium	110000	100	ug/L	122000			10.2	20	
Iron	ND	100	ug/L	ND			0.0	20	
Magnesium	26500	200	ug/L	29600			11.2	20	
Manganese	413	5	ug/L	437			5.7	20	
Potassium	14100	100	ug/L	16100			13.4	20	
Sodium	165000	200	ug/L	187000			12.3	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100 mL	ND				30	BAC14
Fecal Coliforms	ND	1	CFU/100 mL	ND				30	
Total Coliforms	ND	1	CFU/100 mL	ND				30	BAC14
Heterotrophic Plate Count	330	10	CFU/mL	390			17.0	30	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	75.5	1	mg/L	67.7	78.4	78-112			
Fluoride	1.92	0.1	mg/L	0.93	99.1	73-113			
Nitrate as N	1.02	0.1	mg/L	ND	102	81-112			
Nitrite as N	0.852	0.05	mg/L	ND	85.2	76-117			
Sulphate	47.4	1	mg/L	38.4	90.0	75-111			
General Inorganics									
Ammonia as N	0.305	0.01	mg/L	0.034	108	81-124			
Dissolved Organic Carbon	11.4	0.5	mg/L	2.3	91.4	60-133			
Phenolics	0.024	0.001	mg/L	ND	94.8	69-132			
Total Dissolved Solids	76.0	10	mg/L		76.0	75-125			
Sulphide	0.82	0.02	mg/L	0.35	95.4	79-115			
Tannin & Lignin	0.9	0.1	mg/L	ND	86.2	71-113			
Total Kjeldahl Nitrogen	1.91	0.1	mg/L	ND	95.3	81-126			
Metals									
Calcium	10600		ug/L		106	80-120			
Iron	2410		ug/L	ND	95.7	80-120			
Magnesium	35000		ug/L	29600	53.6	80-120			QM-07
Manganese	448		ug/L	437	21.1	80-120			QM-07
Potassium	23300		ug/L	16100	71.5	80-120			QM-07
Sodium	10600		ug/L		106	80-120			

Qualifier Notes:

Sample Qualifiers :

1 : A2C - Background counts greater than 200

QC Qualifiers :

BAC14 : A2C - Background counts greater than 200

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Paracel ID: 1909178

PARACE LABORATORIES LTD.

www.paracellabs.com

Paracel Order Number	Chain Of Custody Ontario Drinking Water Samples
1909178	№ 8263

Client Name:	McIntosh Perry Consulting Engineers	Project Ref:	DCR-18-0512	Waterworks Name:	Samples Taken By:
Contact Name:	Rebecca Leduc	Quote #:		Waterworks Number:	Name: Rebecca Leduc
Address:	115 Walgreen Rd	PO #:		Address:	Signature:
After Hours Contact:		E-mail:	r.leduc@mcintoshperry.com		Page 1 of 1
Telephone:	(613) 650-7977	Fax:		Public Health Unit:	Turn Around Time Required: ☐ 1 day ☐ 2 day ☐ 3 day ☑ 4 day

Samples Submitted Under: (Indicate **ONLY one**)
☐ ON REG 170/03 ☐ ON REG 318/08 ☐ Private Well
☐ ON REG 243/07 ☐ ON REG 319/08 ☑ Other: PWQO

Sample Type: R = Raw ; T = Treated ; D = Distribution; P = Plumbing
Source Type: G = Ground Water; S = Surface Water
Reportable: Requires AWQI reporting as per Regulation - Y = Yes; N = No

Have LSN forms been submitted to MOE/MOHLTC?: ☐ Yes ☒ No ☐ N/A
Are these samples for human consumption?: ☐ Yes ☒ No

All information must be completed before samples will be processed.

Required Analyses

	LOCATION NAME	SAMPLE ID	Sample Type: R/T/D/P	Source Type: G/S	Reportable: Y/N	Resample	SAMPLE COLLECTED DATE	SAMPLE COLLECTED TIME	# of Containers	Free/Combined Chlorine Residual mg/L	Standing / Flushed: S/F (REG 243)	Total Coliform/E. Coli	HPC	Lead	THM	Sodium, Alkalinity, pH, Cond			
1	Maple Creek Court	TWL-1	R	G	N	N	25-Feb-19	9:25	8							X			✓
2	Maple Creek Court	TWL-2	R	G	N	N	25-Feb-19	16:35	8							X			✓
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: Paracel

Relinquished By (Sign):	Received By Driver/Depot: T. Louise	Received at Lab:	Verified By:
Relinquished By (Print):	Date/Time: 26/02/19 10:50 AM	Date/Time: 02/26/19 1:15pm	Date/Time: 02/26/19 1:35pm
Date/Time: 26-Feb-2019	Temperature: °C	Temperature: 10.0 °C	pH Verified: ☑ By:

HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX F
PHOTOGRAPHIC LOG

McINTOSH PERRY

Photo 1: Preliminary image of the Site.

Photo 2: Scrap/debris storage on Site.

Photo 3: Well TW1.

Photo 4: First opening of TW1 during the Site visit.

Photo 5: General location of TW1, along the northern boundary of the Site.

Photo 6: Step test set-up, January 30, 2019.

Photo 7: Step test set-up with pump projecting water overland away from well, January 30 2019.

HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX G
LANGELIER SATURATION INDEX (LSI) AND RYZNAR STABILITY INDEX (RSI) CALCULATIONS

McINTOSH PERRY

Langelier Saturation Index (LSI)

If LSI is negative: No potential to scale, the water will dissolve $CaCO_3$

If LSI is positive: Scale can form and $CaCO_3$ precipitation may occur

If LSI is close to zero: Borderline scale potential. Water quality or changes in temperature, or evaporation could change the index.

The LSI is probably the most widely used indicator of cooling water scale potential. It is purely an equilibrium index and deals only with the thermodynamic driving force for calcium carbonate scale formation and growth.

$LSI = pH - pH_s$

Where:

pH is the measured water pH

pH_s is the pH at saturation in calcite or calcium carbonate and is defined as:

$pH_s = (9.3 + A + B) - (C + D)$

Where:

$A = (Log_{10} [TDS] - 1) / 10$

$B = -13.12 \times Log_{10} (^oC + 273) + 34.55$

$C = Log_{10} [Ca^{2+} \text{ as } CaCO_3] - 0.4$

$D = Log_{10} [\text{alkalinity as } CaCO_3]$

TW1					
pH	7.9			A	0.159329
TDS	392			B	2.49439
Hardness	245			C	1.989166
Alkalinity	217			D	2.33646
Temp.	4.5				
pHs =					7.628092
LSI =					0.271908
RSI=					7.356185

Ryznar Stability Index (RSI)

RSI = 2(pHs) - pH

Where:

pH is the measured water pH

pHs is the pH at saturation in calcite or calcium carbonate

The empirical correlation of the Ryznar stability index can be summarized as follows:

RSI << 6 the scale tendency increases as the index decreases

RSI >> 7 the calcium carbonate formation probably does not lead to a protective corrosion inhibitor film

RSI >> 8 mild steel corrosion becomes an increasing problem.

HYDROGEOLOGICAL STUDY
NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT

APPENDIX H
OTTAWA SEPTIC SYSTEM OFFICE – SEPTIC SYSTEM INFORMATION

McINTOSH PERRY

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

copy

Main Phone: 613-692-3571 x 1129

SEPTIC APPLICATION 18-472 REQUIRED FOR ALL INQUIRIES

Inspection Request Form

Complete and **fax to: 613-692-1507** or **e-mail: septic@rvca.ca**

Section A. Property and General Information			
Date Submitted		**Septic File Number:**	
Civic Address			
Former Township	☐ Osgoode ☐ Cumberland ☐ Goulbourn ☐ Torbolton ☐ Nepean		
	☐ Huntley ☐ Rideau ☐ Gloucester ☐ Fitzroy ☐ Kanata ☐ Ottawa		
Property Owner			

Section B. Requestor Information			
Name of Requestor		**Phone Number:**	
E-mail		**Fax Number:**	
I am the (check one)	☐ Installer ☐ Engineer ☐ Property Owner		

Section C. I am Requesting the following:		
☐ **1st – Subgrade (If required - check one):**	☐ **2nd – Installation Inspection (Check all that apply)**	☐ **3rd – Final Grade Inspection**
☐ Scarification	**Refer to attached:**	**Note: Topsoil must be applied unless winter conditions exist at Director's discretion**
☐ Clay Seal	☐ As-Built Components Page	
☐ Subgrade	☐ As-Built Drawing	
	☐ Engineers Letter	**All deficiencies must be addressed from installation report**
	☐ Filter Media Bills	
	☐ Grain Size Analysis	
	☐ Maintenance Agreement	
	☐ ESA Permit Number:_____	
Notes/Comments		

Section D. Re-inspection			
☐ **Re-inspection - 1st call**	☐ **Re-inspection Request – 2nd call**		
	Note: Re-inspection fee applies on requests for same deficiency – Please provide payment information below		
	Card Type:	☐ Mastercard	☐ Visa
	Card Number:		**Expiry:**
	Cardholder Name:		
Notes/Comments			

Please Note:

- 3-5 business day turn around for inspections
- OSSO file will be given to inspector upon receipt of this request form
- PRIORITY will be given to requests that have septic file/permit numbers

Submit	**Reset**	**Print**

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

SEPTIC APPLICATION

SEPTIC PERMIT NO. 18-412

REQUIRED FOR ALL INQUIRIES

AS-BUILT COMPONENTS

(required prior to installation inspection)

Elevations of installed system must be supplied with this report (in reference to the TBM).
Exact size and location of all structures, well(s) and system(s) and its components must be shown (including neighbouring lots).

Septic/Holding Tank: _____ L

Manufacturer: _____

❑ concrete ❑ plastic ❑ other

Filter: ❑ no ❑ yes _____ make

Treatment: Make _____

Unit: Model _____

Diameter of pipes _____ mm/inches

Make of pipes: _____

Ends: ❑ capped ❑ interconnected

Number of runs: _____ m

Length of runs: _____ m

Stone area _____ m²

Filter media:

Amount Purchased: _____ kg

Date Purchased: _____

Supplier: _____

Grain/size analysis by: _____

Analysis dated: _____

Stone:

Amount Purchased: _____ kg

Date Purchased: _____

Supplier: _____

Name of owner: _____

Installer: _____

Installer Signature: _____

License Number: _____

Date of Installation: _____

Pump Systems:

ESA Permit #: _____

Volume discharge rates: _____ /15min

Alarm location: _____

Dimension of Pump Chamber: _____

Height of Float Switch: _____

Grease Interceptor:

❑ no ❑ yes Size: _____

Location: _____

*** Grain Size Analysis and weight bills must be supplied with this report.**

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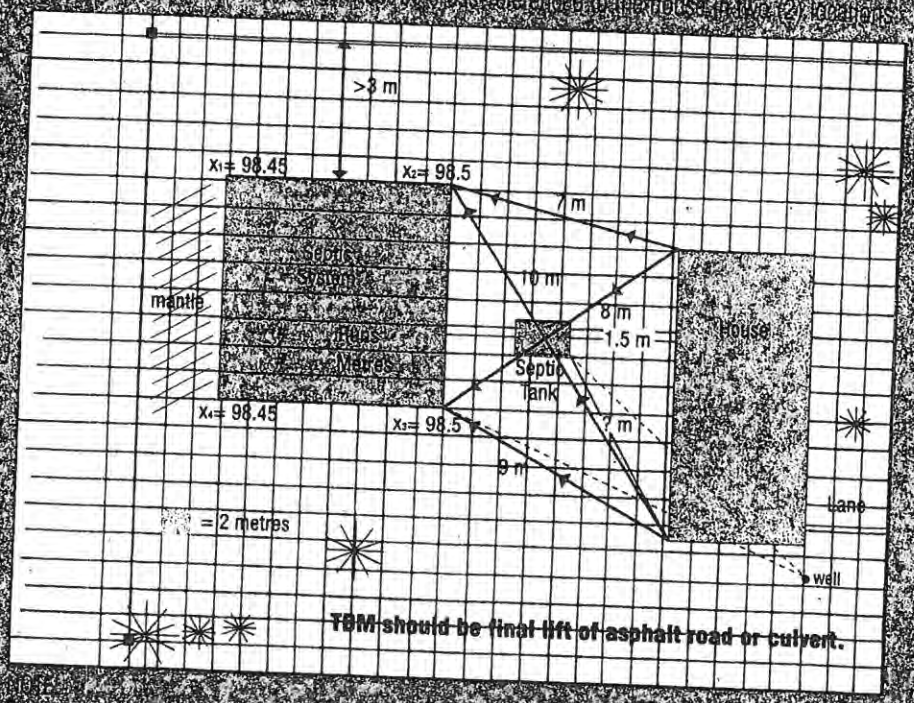
NOTE: All as-built drawings must be cross-referenced to the house in two (2) locations.



AS-BUILT DRAWING

SEPTIC APPLICATION

18-472

REQUIRED FOR ALL INQUIRIES

N

Scale: 1 = 1 metre

SEPTIC PERMIT NO.

Batch # 11947
Entry #: 3

Rideau Valley C. A.
P.O. Box 599
Manotick, Ontario K4M 1A5
Canada
Phone: (613) 692-3571
Fax: (613) 692-0831

DOCUMENT NO.: PY000031797

DATE: 8/31/2018

AMOUNT RECEIVED 936.00 CAD

FROM Green Valley Environmental

SIGNATURE

PAID BY: CHECK **CHECK/RECEIPT NO.:** 000011947-00003 **DATE RECEIVED:** 9/4/2018

DESCRIPTION		AMOUNT
4300-20-20600	200 Maple Creek (HUN) Septic 18-472	936.00
	SUB-TOTAL:	936.00
	TOTAL:	936.00

LETTER OF AUTHORIZATION

Owner: 2431144 Ontario Inc.

Address: 200 Maple Creek Court
Carp Ont
K0A 1L0

Phone No.: 613 913 7493 Cell No.:

Work No.: Fax No.: 613-836-6128

LOCATION OF PROPERTY:

Lot No.: 7 RP 4R-17169

Concession No.: 2N PT

Sub lot/Part No.:

R. Plan No.:

Civic Address: 200 Maple Creek Court

Municipality:

Roll No.: 0614.423.810.07410.0000

Commercial: (provide description of building and intended use)
10,900# Bldg to be used for equipment Storage.

Commercial

R.V.C.A. RECEIVED
AUG 31 2018
REPLY TO:

I, the above – mentioned authorize Green Valley Environmental Services to act as my agent to apply for and obtain a sewage system permit from the responsible Approval Agency. Put in the name of 2431144 Ontario Inc.

Signature: Diana Norm Date: Aug 30/18

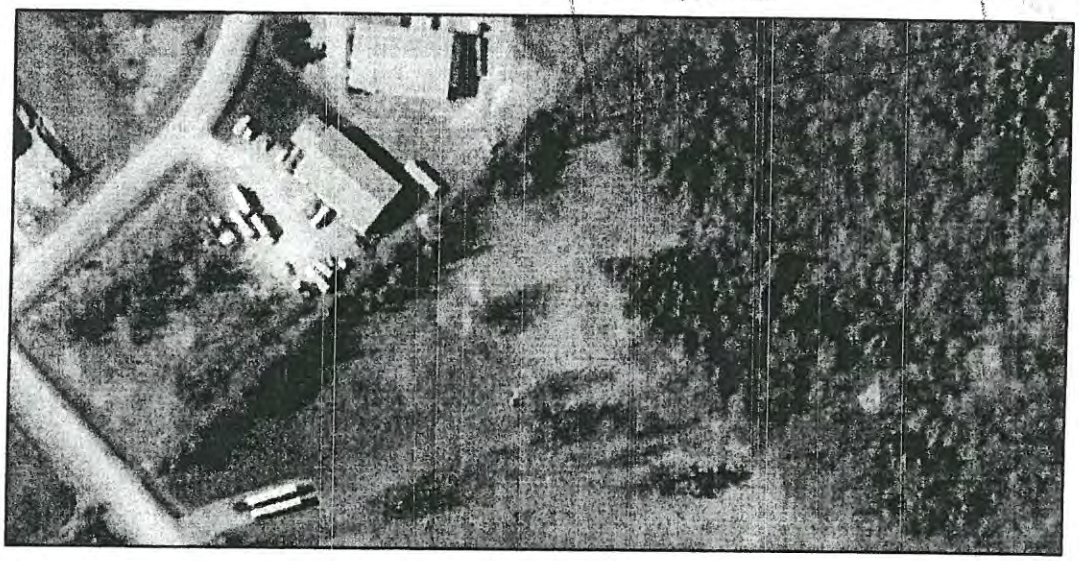
6107 First Line Rd. • P.O. Box 882 Manotick, Ontario, K4M 1A7 • Phone: (613) 692-2616 • Fax: (613) 692-1802
www.gvegroup.ca

200 MAPLE CREEK CRT PIN: 045370627

R.V.C.A. RECEIVED
AUG 31 2018

LEGAL DESCRIPTION / DESCRIPTION OFFICIELLE

PIN	LEGAL DESCRIPTION / DESCRIPTION OFFICIELLE
045370627	CON 2 N PT LOT 7 RP 4R-17169;PART 6



PROPERTY DIMENSIONS / DIMENSIONS DE LA PROPRIÉTÉ

	045370627
FRONTAGE - ft / FAÇADE - pi:	101.73
DEPTH - ft / PRONFONDEUR - pi:	0.00
PROPERTY AREA - acre / SUPERFICIE - acre:	4.3300

SERVICES / SERVICES

PIN	WASTE COLLECTION PICK-UP DAY AND ZONE / JOUR ET ZONE DE LA COLLECTE DES ORDURES
045370627	Z1 WMI TUE A

WARD INFORMATION / INFORMATIONS WARD

PIN	WARD NUMBER / NUMÉRO DU QUARTIER	WARD NAME / NOM DU QUARTIER	COUNCILLOR NAME / NOM DU CONSEILLER - (ÈRE)
045370627	5	WEST CARLETON-MARCH	Eli El-Chantiry

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

R.V.C.A. RECEIVED AUG 31 2018 REFER TO:

For use by Principal Authority

Application number:	Permit number (if different):
Date received:	Roll number:

Application submitted to: OTTAWA SEPTIC SYSTEM OFFICE

(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name: 200 MAPLE CREEK COURT		Unit number	Lot/con. PLT 7 CON 2N
Municipality: HUNTLEY	Postal code	Plan number/other description: 4R-17169 PART 6	
Project value est. $		Area of work (m^2)	

B. Purpose of application

New construction | Addition to an existing building | Alteration/repair | Demolition | Conditional Permit

Proposed use of building: COMMERCIAL	Current use of building

Description of proposed work

INSTALL A SEPTIC SYSTEM TO SERVICE A PROPOSED COMMERCIAL WAREHOUSE BUILDING WITH ATTACHED OFFICE SPACE

C. Applicant

Applicant is: Owner or ✓ Authorized agent of owner

Last name	First name	Corporation or partnership: GREEN VALLEY ENVIRONMENTAL	
Street address: 6107 FIRST LINE ROAD, MANOTICK		Unit number	Lot/con.
Municipality: RIDEAU-OTTAWA	Postal code: K4M 1A7	Province: ON	E-mail
Telephone number: (613) 692-2616	Fax: (613) 692-1802		Cell number: (613) 229-3900

D. Owner (if different from applicant)

Last name	First name	Corporation or partnership: 2431144 ONTARIO INC	
Street address: 400 MAPLE CREEK COURT, CARP		Unit number	Lot/con.
Municipality: HUNTLEY	Postal code: K0A 1L0	Province: ON	E-mail
Telephone number: (613) 913-7493	Fax: ( )		Cell number: ( )

E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

R.V.C.A. RECEIVED AUG 31 2018 TO:

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G.	Yes	No ✓
ii. Is registration required under the *Ontario New Home Warranties Plan Act*?	Yes	No ✓

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).	Yes ✓	No
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the *Building Code Act, 1992*, to be paid when the application is made.	Yes ✓	No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992*.	Yes ✓	No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	Yes ✓	No
iv) The proposed building, construction or demolition will not contravene any applicable law.	Yes ✓	No

I. Declaration of applicant

I STEPHEN BASSETT (print name) declare that:

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date 31 AUG 2018 Signature of applicant S. Bassett.

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor, Toronto, M5G 2E5 (416) 585-6666.

R.V.C.A. RECEIVED AUG 31 2018

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name: 200 MAPLE CREEK COURT		Unit no.	Lot/con. PT LT 7 CON 2N
Municipality: HUNTLEY	Postal code	Plan number/ other description: 4R-17169 PART 6	

B. Individual who reviews and takes responsibility for design activities

Name: STEPHEN BASSETT		Firm: GREEN VALLEY ENVIRONMENTAL	
Street address: 6107 FIRST LINE ROAD, MANOTICK		Unit no.	Lot/con.
Municipality: RIDEAU - OTTAWA	Postal code: K4M 1A7	Province: ON	E-mail
Telephone number: (613) 692-2616	Fax number: (613) 692-1802		Cell number: (613) 229-3900

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

House	HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	✓ On-site Sewage Systems

Description of designer's work

DESIGN A SEPTIC SYSTEM

D. Declaration of Designer

I STEPHEN BASSETT (print name) declare that (choose one as appropriate):

✓ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: 41185

Firm BCIN: 16035

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date 31 AUG 2018 Signature of Designer S. Bassett

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

A. Project Information

Building number, street name: 200 MAPLE CREEK COURT		Unit number	Lot/con.: PT LT 7 CON 2N
Municipality: HUNTLEY	Postal code	Plan number/ other description: 4R-17169 PART 6	

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?

✓ Yes (Continue to Section C) No (Continue to Section E) Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")

Name: SMART SEPTIC SOLUTIONS			BCIN: 11234
Street address: 6107 FIRST LINE ROAD			Unit number / Lot/con.
Municipality: RIDEAU	Postal code: K4M 1A7	Province: ON	E-mail
Telephone number: (613) 692-2616	Fax: (613) 692-1802		Cell number: (613) 229-3900

D. Qualified supervisor information (where answer to section B is "Yes")

Name of qualified supervisor(s)	Building Code Identification Number (BCIN)
BILL SEABROOK	11234

E. Declaration of Applicant:

I STEPHEN BASSETT (print name) declare that:

✓ I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date 31 AUG 2018 Signature of applicant S. Bassett

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

Do Not Complete
Permit No _____
Revision No _____
Date _____

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REFER TO:

Schedule 4
Proposed Services
Complete Sections 1 thru 7

1. **Engineered**
   - ☐ Yes
   - ☑ No

2. **Water supply**
   - ☐ Proposed
   - ☑ Existing

3. **Type of work proposed**
   - ☑ New Installation
   - ☐ Replacement
   - ☐ Alteration

4. **Type of Well**
   - ☐ Dug/bored/Sandpoint well
   - ☑ Drilled well
   - ☐ Municipal
   - ☐ Other

5. **Residential** Sewage Design Flow Info.

Bedrooms _____
House (floor area) _____ **m²**
People _____
Total Fixture Units _____ **(Schedule 8)**
Residential Flow _____ **L/day**

6. Sewage Design Flow **Other Occupancies**

Design Flow 2850 L/day
Detailed sewage flow calculations:
WAREHOUSE W. 10 BAYS = 10 x 150 = 1500 L
OFFICE 168 m² 75 L/9.3 m² = 1355 L
(5 x OFFICE STAFF) TOTAL FLOW = 2855 L/DAY

7. **Type of System**
   - ☑ Treatment Unit NORWECO HK 3020-3M
   - ☐ Class 2 – Leaching Pit
   - ☐ Class 3 – Cesspool
   - ☑ Class 4 – Shallow Buried Trench

   ☐ Class 4 – Trench **(Schedule 9)**
   - ☐ Fully raised
   - ☐ Partially raised
   - ☐ In-ground

   ☐ Class 4 – Filter Media **(Schedule 10)**
   - ☐ Fully raised
   - ☐ Partially raised
   - ☐ In-ground

   ☐ Class 4 – BMEC Area Bed **(Schedule 11)**
   - ☐ Fully raised
   - ☐ Partially raised
   - ☐ In-ground

   ☐ Class 4 – "Type A" Dispersal **(Schedule 13)**
   - ☐ Fully raised
   - ☐ Partially raised
   - ☐ In-ground

   ☐ Class 4 – "Type B" Dispersal **(Schedule 14)**
   - ☐ Fully raised
   - ☐ Partially raised
   - ☐ In-ground

   ☐ Class 5 – Holding Tank (9000L min)
   ☐ Tank/TreatmentUnit/PumpChamber ONLY
   ☐ Effluent Filter/Risers ONLY

OSSO Version June 2014

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Permit No _____
Revision No _____
Date _____

Schedule 5
Sewage System Details

Type of System CLASS 4 - SHALLOW BURIED TRENCH (Schedule 4)

Septic/Holding Tank Size: _____ Litres Make: _____

Septic Tank Effluent Filter Make: _____ Model: _____

Treatment Unit – Make & Model NORWECO HK 3020-3M

Number of Units: 1

Other: _____

Refer to Typical Drawing # PC-5-1169

Pump(s) required LIBERTY 3/4 Hp MOD 290

Mantle Information:

Pump Rate TIMED DOSED ~~L/15min~~

Native or imported =15m in ___/___ direction(s)

Note: Alarm required for all pumping systems

Slope subgrade ___/___ % slope

___/___ direction(s)

Site to be Scarified (If clay) YES / NO

Clay Seal Required (If bedrock) YES / NO

☐ **Trench**

Distribution Pipe Length _____ m

Loading Area _____ m^2

Type of Chamber _____

Length of Chamber _____ m

☑ **Shallow Buried Trench**

Pipe Length 58.0 m

☐ **BMEC Area Bed**

☐ **Type A**

☐ **Type B**

Stone _____ m^2

Sand _____ m^2

Pipe _____ m

Linear Loading _____ L/m^2

☐ **Filter Media Bed**

Stone _____ m^2

Extended Base _____ m^2

Pipe _____ m

Weight of Filter Media _____ Kg

Loading Area _____ m^2

☐ **Tank/Treatment Unit/Pump Chamber Replacement** ONLY

☐ **Effluent Filter & Riser** ONLY

Construction Notes:

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Do Not Complete
Permit No _____
Revision No _____
Date _____

Schedule 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

Name of Applicant/Agent: GVE Date: 7 AUG 2018 Time: 11:30 Applicant/Agent Signature: S. Barsetti	Inspector: Date: Sept 14/18 Time: Inspector Signature:

114.62

EG (.....)	Soil Description	T
	TOPSOIL ±15cm	
	SAND ± 40cm	
	SANDY SILT MIXTURE	
(113.32)	TP ENDS 'DRY' ± 1.3m	

EG (.....)	Soil Description	
.5m		
1.0 m	as per agent	
1.5m		
2.0 m		

EG (.....)	Soil Description	T
.5m		
1.0 m		
1.5m		
2.0 m		

EG (.....)	Soil Description	T
.5m		
1.0 m		
1.5m		
2.0 m		

LEGEND

BR = Bedrock
GWT = Ground water table
HGWT = High ground water table
M = metres
EG = Existing grade
T = percolation rate

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Date _____

Scale: 1Block = ____/____

Schedule 7
Layout Section

N

SEE ATTACHED DWG

○Dug Well ●Drilled Well ▲Neighbouring Homes ◊Benchmark ---Tile Drainage —Property Line

Elevations (metric only)
B.M 115.44 m
B.M Description NAIL IN TREE

Exact Location ALONG SOUTH PROPERTY LINE
SEE ATTACHED DWG.

Min. of 5 elevations in proposed system area (in X pattern)
X_1 _____ X_2 _____
X_3 _____ X_4 _____
X_5 _____ X_6 (toe) _____
X_7 _____ X_8 _____

SEE ATTACHED DWG

Green Valley Environmental Services

On Site Sewage System Design
Class 4 - Aeration System

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AUG 31 2018
REFER TO:

Owners: NCM Hydro Vac
Address: 200 Maple Creek Court

Type of Occupancy: Commercial

Calculation of total design sanitary sewage flow

		Sewage Flow (L/day)
Warehouse (10 bays)	150L/bay	1500
Office 168 sqm	75L/9.3sqm	1355
(5 x office staff)		

Design Sewage Flow: **Q (L/day) =** **2855**

Calculation of total length of shallow buried trenches

Design T(min/cm)	Q (L/day)	total Length (m)
20 < T <50	2855	57.10

To be installed:

Number of runs:	4.00
Length of run (m):	varies
Total (m)	58.00

Length of runs:
run #1=9.0m
run #2=12.7m
run #3=16.3m
run #4=20.0m
Total=58.0m

To be installed: Norweco HK 3020L-3M
Pump chamber volume = 300 gallons
Pump 3/4 hp, 115v, Liberty model 290 or equivalent
Timer Dosing: 30 sec/ every 0.5 hour

6107 First Line Road, Manotick, Ontario, K4M 1A7
Box 882, Tel.:(613) 692 - 2616, Fax: 692 - 1802

200 MAPLE CREEK

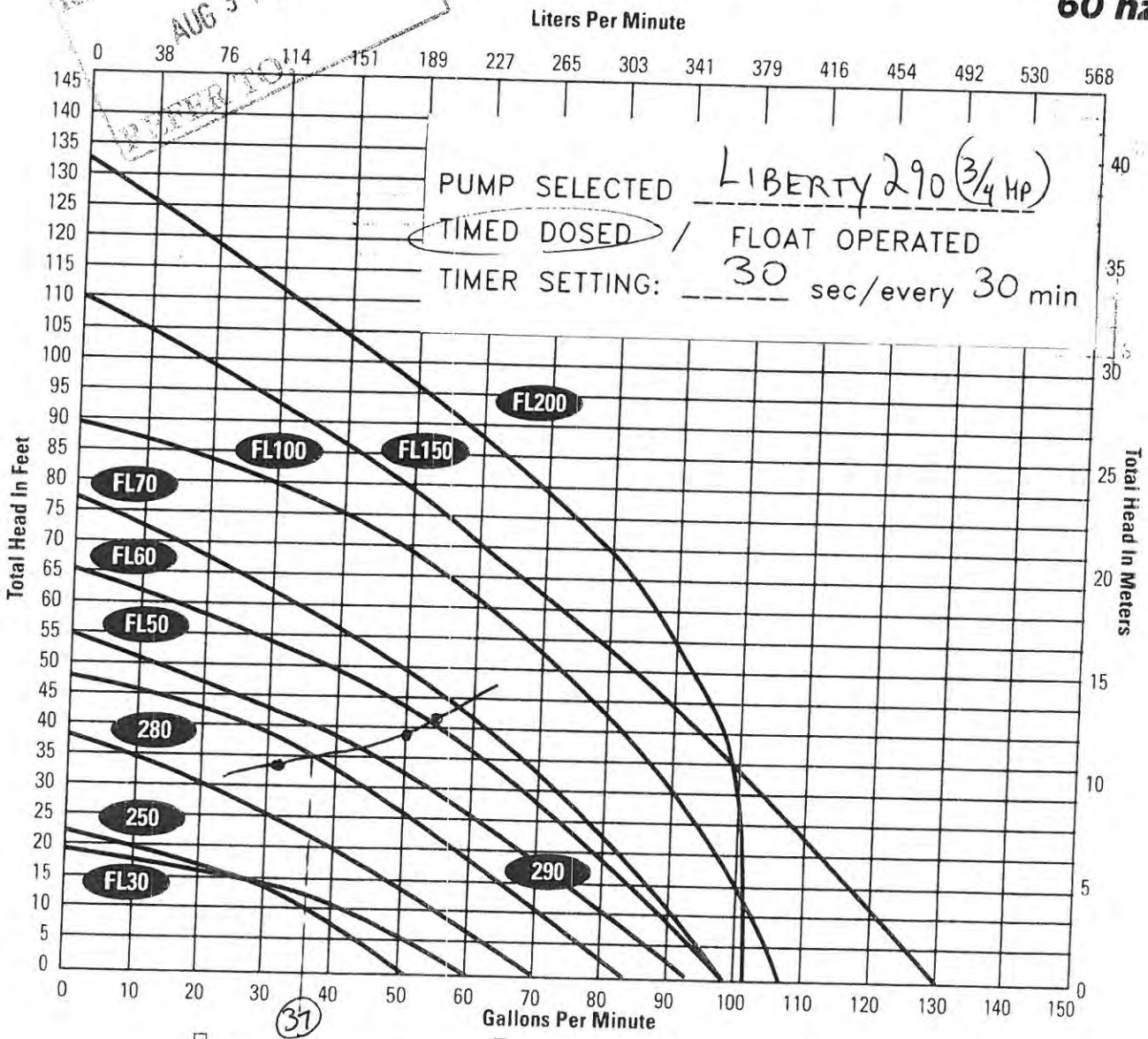
Liberty Pumps®

Effluent Pumps

Performance Curve Data

60 hz.

K.V.C.A. RECEIVED
AUG 31 2018
REFER TO



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Phone 800-543-2550 Fax (585) 494-1839
www.libertypumps.com

Specifications subject to change without notice.

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GREEN VALLEY ENVIRONMENTAL SERVICES

200 Maple Creek Court

In/Output

input	Length of a Lateral (m):	20.00	20.00	20.00	20.00	20.00	20.00	20.00
input	Number of Laterals:	4.00	4.00	4.00	4.00	4.00	4.00	4.00
input	Input spacing of orifices(m):	0.60	0.60	0.60	0.60	0.60	0.60	0.60
→	Number of orifices(calculated):	32.33	32.33	32.33	32.33	32.33	32.33	32.33
input	chosen number of orifices:	33.00	33.00	33.00	33.00	33.00	33.00	33.00
output	space of orifice to edge (m)	0.40	0.40	0.40	0.40	0.40	0.40	0.40
output	total number of orifices:	132.00	132.00	132.00	132.00	132.00	132.00	132.00

diameter of orifice(inch):	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Squirt height (feet):	2.00	5.00	6.00	7.00	8.00	9.00	20.00
Discharge of orifice (US gal/orifice x min)	0.24	0.39	0.42	0.46	0.49	0.52	0.77
Flow in a lateral (US gal/min x lateral)	8.05	12.73	13.94	15.06	16.10	17.07	25.45
Total discharge (US gal/min)	32.20	50.91	55.77	60.23	64.39	68.30	101.81
Total discharge (L/min)	121.88	192.70	211.10	228.01	243.75	258.54	385.41
Total discharge (Imp. gal/min)	26.81	42.39	46.44	50.16	53.62	56.87	84.78

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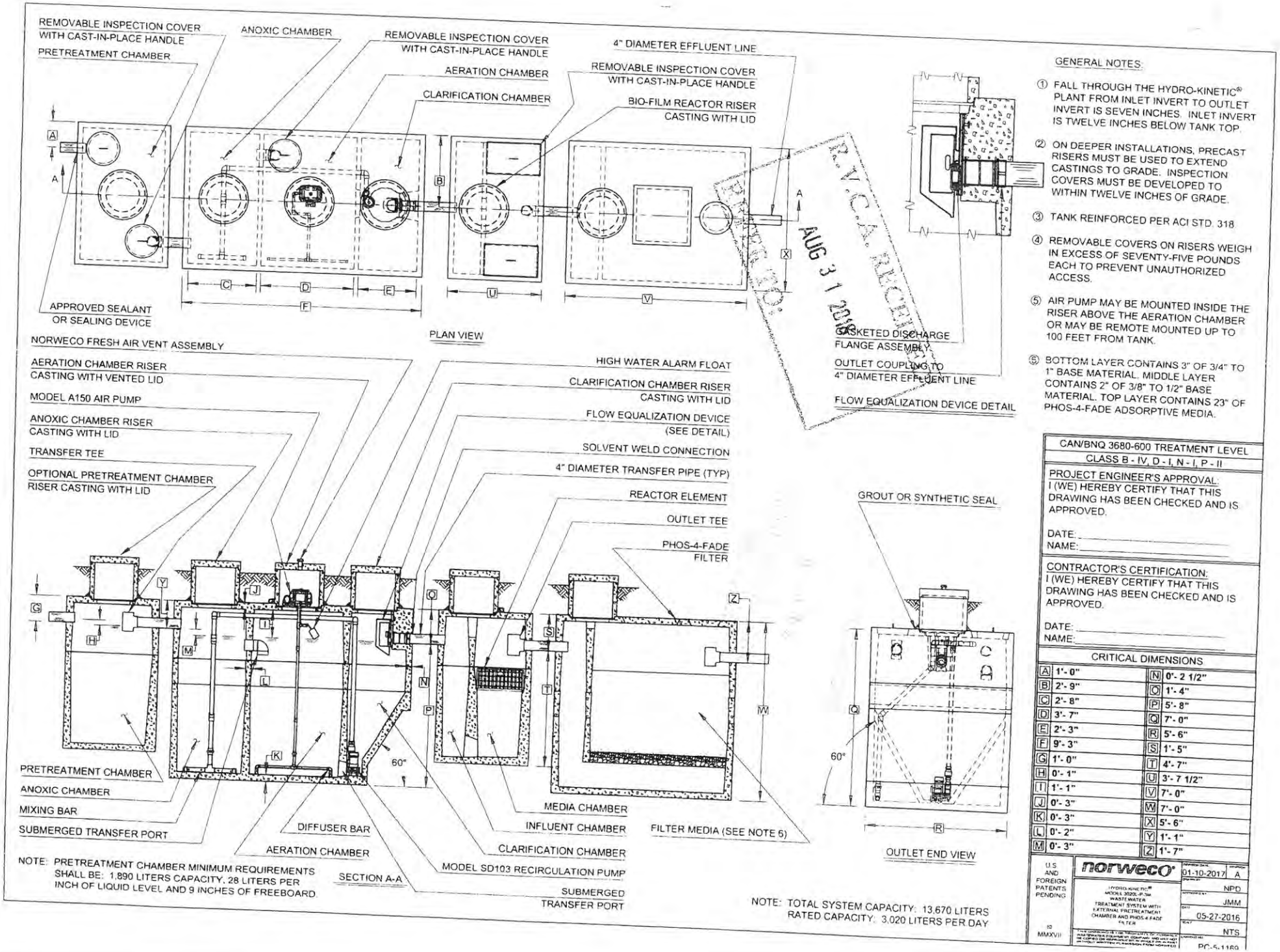
AUG 31 2018

Total Dynamic Head (ft)

		(metric)	(Imperial)						
input	Length of force main(m)	5.00	16.40	16.40	16.40	16.40	16.40	16.40	16.40
input	Diameter of force main (in/cm)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
input	Length of manifold (m)	6.00	19.65	19.65	19.65	19.65	19.65	19.65	19.65
input	Diameter of manifold (in/cm)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
input	Length of lateral (m)	20.00	65.62	65.62	65.62	65.62	65.62	65.62	65.62
input	Diameter of lateral (in)	3.81	1.50	1.50	1.50	1.50	1.50	1.50	1.50
output	Friction loss in forcemain (m/ft)	0.42	1.39	3.24	3.83	4.42	5.00	5.58	11.68
output	Friction loss in manifold (m/ft)	0.17	0.55	1.29	1.53	1.76	2.00	2.23	4.66
output	Friction loss in lateral (m/ft)	0.04	0.14	0.33	0.39	0.45	0.51	0.57	1.20
estimated	Fittings' loss (estimated) (m/ft)	3.05	10.00	10.00	10.00	10.00	10.00	10.00	10.00
input	Residual head on orifice (ft)	0.61	2.00	5.00	6.00	7.00	8.00	9.00	20.00
input	Elevation difference(assumed, from low water level in pump tank to manifold) (m)	6.00	19.69	19.69	19.69	19.69	19.69	19.69	19.69
output	TDH (estimated) (m/ft)	10.29	33.77	39.55	41.44	43.32	45.20	47.06	67.22
	Q (gpm)		32.20	50.91	55.77	60.23	64.39	68.30	101.81

6601 First Line Road, Manotick, Ontario, K4M 1A7
Box 882, Tel. (613) 692-2616, Fax: (613) 693-1802


REMOVABLE INSPECTION COVER WITH CAST-IN-PLACE HANDLE
PRETREATMENT CHAMBER
ANOXIC CHAMBER
REMOVABLE INSPECTION COVER WITH CAST-IN-PLACE HANDLE
AERATION CHAMBER
CLARIFICATION CHAMBER
4" DIAMETER EFFLUENT LINE
REMOVABLE INSPECTION COVER WITH CAST-IN-PLACE HANDLE
BIO-FILM REACTOR RISER CASTING WITH LID
APPROVED SEALANT OR SEALING DEVICE
PLAN VIEW
GASKETED DISCHARGE FLANGE ASSEMBLY
OUTLET COUPLING TO 4" DIAMETER EFFLUENT LINE
FLOW EQUALIZATION DEVICE DETAIL
NORWECO FRESH AIR VENT ASSEMBLY
AERATION CHAMBER RISER CASTING WITH VENTED LID
MODEL A150 AIR PUMP
ANOXIC CHAMBER RISER CASTING WITH LID
TRANSFER TEE
OPTIONAL PRETREATMENT CHAMBER RISER CASTING WITH LID
HIGH WATER ALARM FLOAT
CLARIFICATION CHAMBER RISER CASTING WITH LID
FLOW EQUALIZATION DEVICE (SEE DETAIL)
SOLVENT WELD CONNECTION
4" DIAMETER TRANSFER PIPE (TYP)
REACTOR ELEMENT
OUTLET TEE
PHOS-4-FADE FILTER
GROUT OR SYNTHETIC SEAL
PRETREATMENT CHAMBER
ANOXIC CHAMBER
MIXING BAR
SUBMERGED TRANSFER PORT
DIFFUSER BAR
AERATION CHAMBER
MEDIA CHAMBER
INFLUENT CHAMBER
CLARIFICATION CHAMBER
MODEL SD103 RECIRCULATION PUMP
SUBMERGED TRANSFER PORT
FILTER MEDIA (SEE NOTE 6)
60°
SECTION A-A
OUTLET END VIEW
NOTE: PRETREATMENT CHAMBER MINIMUM REQUIREMENTS SHALL BE: 1,890 LITERS CAPACITY, 28 LITERS PER INCH OF LIQUID LEVEL AND 9 INCHES OF FREEBOARD.
NOTE: TOTAL SYSTEM CAPACITY: 13,670 LITERS
RATED CAPACITY: 3,020 LITERS PER DAY
GENERAL NOTES:
① FALL THROUGH THE HYDRO-KINETIC® PLANT FROM INLET INVERT TO OUTLET INVERT IS SEVEN INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
② ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND CASTINGS TO GRADE. INSPECTION COVERS MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.
③ TANK REINFORCED PER ACI STD. 318
④ REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
⑤ AIR PUMP MAY BE MOUNTED INSIDE THE RISER ABOVE THE AERATION CHAMBER OR MAY BE REMOTE MOUNTED UP TO 100 FEET FROM TANK.
⑥ BOTTOM LAYER CONTAINS 3" OF 3/4" TO 1" BASE MATERIAL. MIDDLE LAYER CONTAINS 2" OF 3/8" TO 1/2" BASE MATERIAL. TOP LAYER CONTAINS 23" OF PHOS-4-FADE ADSORPTIVE MEDIA.
CAN/BNQ 3680-600 TREATMENT LEVEL
CLASS B - IV, D - I, N - I, P - II
PROJECT ENGINEER'S APPROVAL:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED.
DATE:
NAME:
CONTRACTOR'S CERTIFICATION:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED.
DATE:
NAME:
CRITICAL DIMENSIONS
A 1'- 0" | N 0'- 2 1/2"
B 2'- 9" | O 1'- 4"
C 2'- 8" | P 5'- 8"
D 3'- 7" | Q 7'- 0"
E 2'- 3" | R 5'- 6"
F 9'- 3" | S 1'- 5"
G 1'- 0" | T 4'- 7"
H 0'- 1" | U 3'- 7 1/2"
I 1'- 1" | V 7'- 0"
J 0'- 3" | W 7'- 0"
K 0'- 3" | X 5'- 6"
L 0'- 2" | Y 1'- 1"
M 0'- 3" | Z 1'- 7"
U.S. AND FOREIGN PATENTS PENDING
norweco
HYDRO-KINETIC® MODEL 3020-P-3M WASTEWATER TREATMENT SYSTEM WITH EXTERNAL PRETREATMENT CHAMBER AND PHOS-4-FADE FILTER
MMXVII
01-10-2017 A
NPD
JMM
05-27-2016
NTS
PC-5-1169
R.V.C.A. RECEIVED AUG 31 2016

Commercial

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

Do Not Complete
Permit No
Revision No 72
Date 18-4
Related Application
SEPTIC APPLICATION
REQUIRED FOR ALL INQUIRIES

Permit
Part 8 – Sewage System
Ontario Building Code

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the *Ontario Building Code* and *O.Reg. 323/12* as amended by *O.Reg. 151/13*.

Inspected & Recommended by: J. Hutton
Owner: 2431144 Ont. Inc
Inspection Date & Time: Sept 14/18
Weather:
Civic Address: 200 Maple Creek Crt.
Legal:

number of bedrooms:
fixture units:
finished floor area:
Q: 2855 L/day

septic/holding tank/pretreatment tank — L
effluent filter
pump rate time dosed L/15 min
treatment unit Norweco HK 3020-3M
number of units 1

weigh bills for filter media	☐ yes	☒ no
grain size analysis required	☐ yes	☒ no
site to be scarified	☐ yes	☒ no
clay seal inspection	☐ yes	☒ no
mantle required	☐ yes	☒ no
sub-grade inspection	☐ yes	☒ no

ELEVATION ☐ In Ground ☐ Partially Raised ☐ Fully Raised

TYPE OF SYSTEM

☐ **Trench**
○ **Pipe and Stone or** ○ **Chambers**

type of chamber
loading area m^2
total trench length

☒ **Shallow Buried Trench**

pipe length 58 m
orifice spacing 0.6 m

☐ **Filter Media Bed**